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HANDBOOK OF THE NETHERLANDS
AND OVERSEAS TERRITORIES

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HANDBOOK OF THE NETHERLANDS AND OVERSEAS TERRITORIES.

CONTENTS.

	Page
PREFACE	IX
SECTION A. THE TERRITORY IN EUROPE.	
Chapter I. General Survey.	3
„ II. The Soil and its apportionment	10
„ III. The draining of the Zuiderzee	17
„ IV. The Population.	25
„ V. Constitution of the State	30
„ VI. National Defence.	37
„ VII. Public Finance	46
„ VIII. Legislature and Judicature.	61
„ IX. Social Provisions	67
„ X. Public Health	78
„ XI. The Sciences.	88
„ XII. Art and Literature	96
„ XIII. Education	108
„ XIV. The Press	117
„ XV. Sport	123
„ XVI. Agriculture and Cattle-breeding	131
„ XVII. Industry	147
„ XVIII. Fisheries.	161
„ XIX. The Mining Industry	168
„ XX. Trade and Commerce.	175
„ XXI. Banking	185

		Page
Chapter	XXII. The Road System	191
„	XXIII. The Water-ways	199
„	XXIV. Railways	206
„	XXV. Aviation	213
„	XXVI. Shipping	223
„	XXVII. Safety along the Coast . . .	229
„	XXVIII. The Ports	235
„	XXIX. Supply of Electric Power . .	247
„	XXX. Postal, Telegraph and Telephone Services	251

SECTION B — THE NETHERLANDS EAST-INDIES

Chapter	XXXI. Geographical Situation and Extension	261
	General Topography, Geology and Soils	262
	Climate	265
„	XXXII. Population	268
	Immigration	272
	Public Health	274
	Education	278
„	XXXIII. Government	283
	Judicature	290
	Public Finance and Monopolies .	293
„	XXXIV. The Monetary System . . .	300
	The Java Bank	301
	Other Banking Institutions . . .	303
	The Savings-Bank System . . .	305
	The People's Loan System . . .	305

		Page
Chapter	XXXV. Agriculture	307
	The Agrarian Legislation.	307
	Agricultural Products.. . . .	311
	Horticulture	329
	Irrigation, Drainage and Flood Control.	330
	Cattle-breeding	333
	Fisheries	336
	Forest Service	337
„	XXXVI. Mining	340
„	XXXVII. Industry	348
	Water-power and electricity	348
	Branches of Industry	350
„	XXXVIII. Trade	356
	Commercial Organizations	360
	Statistical Information	362
„	XXXIX. Traffic	364
	Shipping	364
	Rail- and Tramways.	370
	Motor-car traffic	372
	Civil Air-traffic	374
	Postal, Telegraph, Telephone and Wireless Services	376
	Roads	383
	Harbours	385
	Tourism.	388

SECTION C. — THE NETHERLAND TERRI- TORIES IN AMERICA.

Chapter	XXXX. Surinam	395
„	XXXXI. Curaçao	402
		VII

SECTION A. — THE TERRITORY
IN EUROPE.

CHAPTER I.

GENERAL SURVEY.

Judged according to area, the Kingdom of the Netherlands *in Europe* occupies a modest place; of the twenty European states it is almost the smallest. The territory, the boundaries of which have not been altered since 1839, covers an area of about 40 000 square Kilometres and is situated between $7^{\circ} 12'$ and $3^{\circ} 25'$ of Eastern Longitude and between $53^{\circ} 32'$ and $50^{\circ} 45'$ of Northern Latitude. As a result of its geographical position the Netherlands enjoys a moderate climate, softened by the influence of the sea.

Quite a different picture however the Kingdom of the Netherlands shows *outside Europe*, especially in Asia, where the Netherland territory covers about two million square Kilometres, so that the Netherlands and the Dutch East Indies together are of the same size as the whole of West and central Europe. To this must be added the Dutch West Indies, consisting of Surinam with an area four times that of the Mother-country and Curaçao, covering over 1200 square Kilometres.

This extraordinary relation between the Mother-country and its Overseas Territories determines to a very great extent the economic and financial position of the Netherlands. In fact, the relation between Dutch wealth and industrial life in the Overseas Territories is important to the realm; especially the national balance-sheet is strongly influenced by the industrial output of said territories, whilst moreover Netherland industries find a natural outlet there.

These facts however should not give the impression as if the Netherlands, economically speaking, is entirely dependent on the East Indies. For in this respect the

geographical position of the Kingdom in Europe, which may be called a very favourable one, plays an important part. The Netherlands enjoys the advantage of very extensive traffic facilities in two directions: on its Western and Northern boundaries the North-sea is the gateway of the Dutch merchant fleet, which visits the ports of Western, Northern and Southern Europe, as well as those of other parts of the world; and to the East and South many railway lines and water-ways connect the country with an economically strongly developed hinterland.

Owing to these facilities the economic position of the Netherlands, which is determined both by its colonial territories and by its geographic situation, finds an expression in an extensive foreign trade in raw materials and produce of the soil, and in a flourishing industrial export, factors which secure for this country a very significant place in the worlds' markets. To retain this position, the country has the assistance of a strong mercantile marine with numerous regular sailings to all parts of the world and disposes of two excellently equipped harbours of Rotterdam and Amsterdam, while it has the additional advantages of a sound, well-regulated banking system and of up-to-date transport facilities, not only by land and water, but also by air.

If therefore to a large extent the economic position of Holland is determined by *foreign* relations, which have also made the ports of Amsterdam and Rotterdam centres of staple commodities and world markets for a few bulk goods, the home industries by no means play a subordinate part therein. The Netherlands is not an independent industrial state, the soil for that purpose being too poor in ores; it is neither an independent agricultural country as is proved by the necessary grain import. This however is counterbalanced by an important exportation of agricultural produce, and by the fact

that Dutch industry has obtained for its products an increasing outlet throughout the world.

Owing to these facts the Netherlands has a favourable balance of payments. There is, it is true, a regular excess of imports, but not to such an extent as to injure the sound economic position of the country. The production of and the trading in its own agricultural and industrial output and the manipulation of and the trade in colonial produce added to the profits derived from shipping and banking business have made the Netherlands economically sufficiently strong to suffer such an excess of imports. We are reminded in this connection of the words of the President of the New-York Stock Exchange when visiting the Amsterdam Exchange in the spring of 1929: "It often surprises us to see how little Holland's economic position in the world is dependent on the natural resources within its own frontiers".

The development of the economic life of the Dutch East Indies and their position on the money and mercantile markets of the world, will be dealt with in detail in Section B of this volume.

Two quotations from acknowledged foreign authorities may here be cited with regard to the relations between the Mother-country and the Overseas Territories. The one is derived from the standard work dealing with the Dutch East Indies, by GABRIEL ANGOULVANT, Honorary Governor-General of the French Colonies, entitled: "*Les Indes néerlandaises*" and runs as follows: "*Les Hollandais sont des maîtres en maints domaines et souvent on ne peut que leur donner un coup de chapeau. La Hollande peut présenter au monde, sans crainte et avec une légitime fierté, les fruits magnifiques de son patient et tenace effort de plusieurs siècles*". The second quotation is taken from words spoken at an interview that was given by ALBERT THOMAS, the Director of the Interna-

tional Labour Bureau at Geneva, to representatives of the Press: „The colonization of the Dutch Indies is an example of technical perfection and of an incomparably systematic organization of labour”.

* * *

It would be a one-sided and therefore incomplete picture of the position of the Netherlands in the world by only showing its material value. This country indeed, by reason of its historic fame and present day achievements, may justly claim an important place in proportion to its small population, in the sphere of ideal values. The country of Rembrandt, of Boerhaave, of Spinoza, of Grotius, of Vondel, to name only a few of the great leaders of the past, need not live on the historic renown of these and other great men, but has equally had its share in modern development of science, of art and literature and disposes of several able men in the spheres of international law, of colonial politics and of the applied sciences, notably the radio technique and the science of hydraulics. This position of a small people, with a naturally poor financial backing for these manifold interests, will be further described in this Section. The chapters dealing with the Overseas Territories will show that the Netherlands also with regard to these parts of the Kingdom, has not been merely actuated by material interests and thoughts of a profitable cultivation of the Indian soil for the benefit of the Dutch Exchequer and of Dutch capital, but that the Mother-country has manifested a conscientious desire, both in forming and developing their intellectual and mental powers, and in an intensive application of science of Tropical Hygiene, to provide the native population with every means to promote their individual and social advancement.

* * *

There are further grounds for international interest in the Netherlands. The low country along the sea with its many waterways and wide horizon has a great charm for tourists and more especially for the lovers of watersport, as many a book from the pen of English, French and American visitors testifies. Other attractions are the many old buildings and façades, carefully preserved; the State, provincial and town museums, which, as proved by the success of the Exhibition of Dutch art held in London in 1929, are a silent demonstration of a classic beauty, which is for all times and all countries.

Many more typically Dutch things could be mentioned which help to complete the picture of the country, drawn in this volume. Like the Dutch merchant flag, which may be found in every port of the globe, and Dutch produce, which may be met with in all parts of the world, so the names of Dutch people are mentioned the world over in many departments of culture. This position of a small country with very large overseas territories reflects the character of a people, which with great exertion has had to secure the profitable cultivation of its soil, its economic situation and also its place in the intellectual life of nations. In achieving these results they were able to draw out of the fund of a rich history; nevertheless the nation was constantly obliged to realize large works in order to keep pace with technical developments of modern life.

This activity is still continuing and is marked nowadays by acquisition of a new province, owing to the draining of the Zuiderzee. In that way a fertile area of 194 000 hectares will be added to the native soil, equal to about 7 % of the area of the Netherlands. This extension of territory without enlarging the frontiers, is taking place in a period in which the population of the Netherlands is increasing by about 100 000 annually, and it may

therefore be considered to be a necessary undertaking for the benefit of national prosperity and national food supply. Yet this acquisition of land will only be able to keep pace with an increase of population for a few years. And when the waste ground, still covering 440 000 hectares, shall have been converted into arable and pasture land, then the soil of the Netherlands, as far as agriculture and cattle-breeding are concerned, will have reached its maximum capacity. It is possible therefore that within a measurable distance of time, the increase of population will necessitate a considerable extension of industry, unless existence on native soil be relieved by emigration to the overseas territories or abroad.

Present conditions in the Netherlands, however, cannot be considered normal yet, as they are still too much under the influence of the great War. Both in the industrial export trade and in the harbour and sea-borne traffic our country is still subject to influences which put a brake on the complete recovery of the position it occupied previous to 1914. It is true, that a return to stability has been more clearly noticeable since 1924 and that especially the stabilisation of the currency has had the effect of regaining for the Netherlands its self-confidence and the confidence of the international money market, but nevertheless an important part of the industrial life has still a hard struggle to reconquer lost ground or to find new outlets.

This feature however is no longer of overruling importance in the present day condition of the Netherlands. The energy with which the Netherlands, in all branches of trade and traffic as well as in modern industries, such as radio and artificial silk, are participating in the revival and encouragement of business activities, is a sign that the old spirit of perseverance and thoroughness, formed in the battle against the water, has remained unaltered.

Without exaggeration it may well be asserted, that the Netherlands, in spite of hard knocks which its geographical situation and international relations caused it to receive during and after the War, is now exercising its full strength to defend and maintain unimpaired its position amongst the nations. In so doing it can rely on the assistance and guidance of a number of able and energetic men of acknowledged international reputation in different spheres of activity, thus rendering the country independent of foreign co-operation, leaving thus unshaken faith in the Dutch race.



CHAPTER II.

THE SOIL AND ITS APPORTIONMENT.

The name Netherlands (= lowlands) denotes both the nature of its geological condition and the dominating element of its economic history. A natural continuation of the north German plains, the soil of the Netherlands from S. E. to N. W. forms a gently sloping plain, ending in the North Sea. In the same direction also the large rivers, the Scheldt, Meuse and Rhine reach their estuaries. The water is both in and outside (half of the Dutch border is coastline) a factor which may be considered as exercising a decisive influence on the condition of the Dutch soil, the protection and strengthening of which has necessitated (and is still necessitating to this day) a struggle lasting a century. That same water however has also been and remained Holland's ally, in so far as it carries the ships which to this day are of the greatest importance for her home and foreign traffic.

Not less than a fourth part of the Netherlands is situated on the Amsterdam level which is about the average height of the sea level); the land up to 10 m above A. P. covers about 25 %, and the remaining portion has an elevation, with only a few exceptions (South Limburg) from 10 to 50 m above A. P. These proportions determine the usefulness and the fertility of the soil; the very low parts, so often drenched with the under-ground water or subjected to inundation by stormfloods, require a strong protection and drainage to render them regularly fertile. It may be said that 38 % of the surface need protection by dikes or dunes. The advantage of being low is that most of the soil is fertile and has remained so as is clearly shown by the fact, that ± 70 % of the Dutch

soil consist of arable and meadow land and horticultural soil, which judging from crop returns and the results of cattle breeding, must be of excellent quality. Such soil is principally found in the provinces of Groningen, Friesland, North and South Holland and Zeeland, to a small extent also in Overijssel and Utrecht. The provinces of Drente, Overijssel, Gelderland, Utrecht, North Brabant and Limburg have on the whole a more elevated situation, and require therefore the assistance of artificial manure, through the application of which these districts have also enormously gained in the productivity of their soil.

As against the richness of its arable land and pastures and, in connection with the many waterways, in the interior of the country, of its fisheries, the Netherlands are poor in minerals and in wood. The forest surface only covers 8 % of the soil. As regards minerals, South Limburg possesses coal-mines in a very advanced state of exploitation; North Eastern Brabant and Central Limburg have still undeveloped layers of coal, and the Eastern corner of Gelderland has coal and salt formations which are being worked near Boekelo—Hengelo. Both the coal-mines of Limburg and the salt-mines of Overijssel produce considerable quantities, which nearly cover the consumption of the country.

In addition to the condition of the soil, its composition is of equally great importance to those who live on it. In the main the soil of the Netherlands shows the twofold condition of its area; the elevated area as an offshoot of the German lowland, which contains diluvial sand- and gravel soil and covers 45 % of the surface, and the lower area, which comes into contact with sea and riverwater, embraces the clay ground, which covers nearly 35 % of the surface of the country.

There are moreover the alluvial sand and heath areas

(of which the so-called "bulb region" forms a part) and the peat and humus soil to which the high and low peat-bogs belong.

This variety of soil clearly shows the geological formation of the country. The diluvial soil is in fact a deposit of rough sand, flint clay and gravel, carried to our country in the glacial period by moraines of glaciers and by large rivers, originating from the melting Alpine glaciers. In this kind of soil also banks of clay have been segregated which are utilised for brick and tile works. Chiefly however the diluvial area is the soil for arable land and pasture-ground, which only becomes productive when well manured. The waste, still uncultivated ground and most of the forests also belong to this area.

The aluvial clay grounds from their nature form the best soil for cultivation; they are a natural result of the course of the large rivers and the aluvial North Sea deposits. The heavy clay grounds are mostly used for arable land, and, if they contain a high degree of moisture, for pastures. The river clay, which is lighter and more mixed, is suitable both for tillage and pasture land and also for horticulture.

The aluvial sand areas in our country form the substance of the dunes and of the sandbanks and have therefore hardly any value for cultivation. On the other hand the heaths beyond the dunes are very valuable: by cultivation for several centuries the sand there has become mixed with humus (rotten plants) and is now of such composition that it would be vain to look abroad (with the exception of a small area in the south of France) for a soil so eminently suitable for bulb growing.

The peat and humus soil consists of various kinds of matter. The low peat soil originated in shallow waterpools from water plants which when withering do not completely decay, but form a kind of vegetable mud. It

forms layers of from $\frac{1}{2}$ to 4 m thickness, from which peat is dug or which is used for pasture and cattle farming, but which sometimes also can be used for horticultural purposes. A much larger peat production is derived from the high peat grounds formed by plants which do not entirely decay but become turfy, and which at a greater elevation are found where the drainage is insufficient. The centre of peat digging is found in the Groninger peat colonies and in Drente. The area of the high peat bogs has been thereby already reduced from 90 000 ha in the middle of the 19th century to 30 000 ha at the present time, and this process regularly continues.

In connection with the above, reference may be made to brown coal (lignite), the age of which is between pit coal and peat: during the war the mining of this coal was intensified in South Limburg, and, as it covers a limited area, its production is now practically exhausted. Another kind of soil, also peculiar to South Limburg is the so called "löss", a diluvial sort of clay, which on account of its porous structure is suited for agriculture. Finally we find in the Limburg soil the chalk formation, about 200 m thick, which furnishes marl and limestone, chiefly used for building purposes.

From the foregoing enumeration of the various kinds of soil, it will be sufficiently clear that the Netherlands from a agrarian point of view may be considered a very privileged country, even though the application of artificial manure has to render much auxiliary service. Assuming, on the basis of expert calculations, that the most fertile soil must be composed of from 20 to 30 % of clay, 50 to 70 % of sand, 5 to 10 % of carbonate of lime, and 5 to 10 % of humus, then the principal kinds of soil of our country appear in a favourable light: the ordinary sandy soil contains more than 70 % of sand, the gravel soil contains less than 70 % of sand and 20

to 30 % of clay, the humus sand soil contains from 50 to 70 % sand and less than 30 % clay. The heavy clay soil contains more than 60 % of pure clay, the sandy clay soil less than 50 % of clay and more than 40 % of sand.

* * *

The present condition of the soil of the Netherlands is the result of continuous and persevering labour both in the sense of the reclamation of land from the sea and from inland waters, and in that of the transformation of waste lands into fertile soil. The water, which in the course of centuries had corroded or inundated large tracts of land, has through a system of diking and draining, been forced back to such a degree, that, when the important work of the drainage of the Zuiderzee will have been completed, it may be said that the loss of land has been entirely made up for by the gain thereof. This may be approximately expressed in figures. Holland has been forced in the course of time to yield to the North sea and to inland waters an area of nearly 600 000 ha; it has so far regained about 375 000 ha, which figure, together with the 224 000 ha to be reclaimed from the Zuiderzee, also makes 600 000 ha. The chapter relating to this work gives further particulars on this subject.

The increase of land in the sense of the cultivation of waste grounds has progressed especially during the last century: whereas in the beginning of the 19th. century the waste grounds still occupied 30 % of the land area, which percentage has now been reduced to 13 %. Modern technique assists these efforts to such an extent that the

useless soil of the Netherlands may be relied upon to be reduced, within a measurable distance of time, to a negligible area. A large portion of the waste ground is and will be used for afforestation: in the last half century the forest area has increased from 223 000 to over 250 000 ha (of which about three fifth is pine wood).

For the preservation of the natural beauty of the landscape, woods, etc. in the Netherlands, an association has been formed, the "Vereeniging tot behoud van Natuurmonumenten", with one Committee having in its charge the preservation of the Dutch landscape, and the other the protection of different sorts of animals.

After Great Britain, the Netherlands of all European countries are the poorest in forest, hence a timber importation which is seven times as large as the produce of our own soil. Since 1919 a State forest administration has existed.

As a subsidiary part of the cultivation of the soil there must also be mentioned here the check put upon the spreading of the sandy soil in the Veluwe, by means of plantations which are also found in a different form for the preservation of the Northsea dunes. In this way an area of 1500 ha planted with fir trees has been reclaimed in the Veluwe.

Speaking of the different ways of soil reclaiming, we must not forget to mention the Netherlands Heath Company, which has already performed pioneer work in this direction for over 40 years and still remains a driving force. The work preceding mining operations is under the scientific guidance of the Government Geological Service. For the making of dikes and drainage Holland has at its disposal a large number of hydraulic experts, who, according to the opinion of Commissions from abroad are not behind their famous predecessors, whose work was already famous in the 17th. century,

as testified e. g. by a street in Bordeaux, named after CONRAD GOOSSENS, 1625: a polder adjoining the Gironde, called the Dutch polder: a dike built in 1643: the "Ceinture des Hollandais" near Luçon, and "La Digue des Hollandais" on the Seine near Quillebeuf (1618).



CHAPTER III.

THE DRAINING OF THE ZUIDERZEE.

In the history of land reclamation it will hardly be possible to point out a task, which, both literally and figuratively, is so entirely an internal concern as the draining of the Zuiderzee. Bound on the East, South and West by five provinces, and on the North separated from the North Sea, by the North Holland Islands, the Zuiderzee covers an area, the use of which may be changed without the slightest interference from abroad. Such a change is now taking place before the eyes of Holland: the Zuiderzee which from North to South at the point of greatest length it would take about 23 hours, and from East to West where it is widest 15 hours to traverse on foot, will, within two decades be transformed into four polders, of a totale area of about 244 000 ha, and the Yssel-lake, of an area of about 145 000 ha, which will be made into a fresh water lake.

Although the Netherlands as regards drainage, have already completed important works — we may mention the Beemster, the Purmer and the Schermer in North Holland, having together an area of nearly 15 000 ha, and the Haarlem lake of an area of 18 000 ha — yet the work which has now been started is of such an extent and such a significance, that it deserves a special description. We have already pointed out that the draining of the Zuiderzee is an undertaking of national importance of the first order, as regards the creation of new opportunities of labour for a rapidly increasing population and an extension of the sources of food supply for that population. The new province will be indeed almost exclusively an agricultural district and, as shown by the ground borings carried on during the years from

1866—1889 to the number of about a thousand, such an area will consists up to 70 % of heavy clay and up to 20 % of light clay. Such a composition of the soil therefore promises the best results for tillage and in the estimate of the cost the capital value of the fully cultivated soil has been given as higher than the total drainage cost.

If this extensive work is therefore financially justified and as regards popular prosperity may be looked upon as a necessary addition to the land available for agriculture, also from the point of view of hydraulics, the draining of the Zuiderzee is a piece of work which taxes to the utmost the skill of Dutch engineers, and has already now induced many foreign experts to visit Holland. This will be better understood after a short review of the origin and nature of the Zuiderzee.

The coast-line of the Netherlands curving from North to East was originally an almost uninterrupted row of dunes, intersected at certain places by the mouths of the Scheldt, Meuse and Rhine. In the North however this line of dunes has been pierced at various points, the breaches having been widened to such an extent, that the land behind became inundated: the North Holland Islands, referred to above, are clearly the remains thereof. At this time — presumably about 1225, according to others 1282 — the junction took place of lake Flevo, which was situated in the heart of the country and where amongst others the river Yssel had its source, with the Waddenzee which had its origin in the above mentioned breaches, and the Zuiderzee was thus formed. Its natural boundaries were the more elevated portions of the provinces of Friesland (Gaasterland), Gelderland (Veluwe) and North Holland (the Gooi), the surrounding provinces being further protected by dikes.

The origin of the Zuiderzee from two such different

water sheets of is clearly shown by the condition of the soil. The basin (the old Flevo lake) has a uniform structure of the bottom sloping down from the coast to the centre to a depth of $4\frac{1}{2}$ meters. This formation was the cause that fishermen with long poles could easily examine the kind of soil which was there under the sea: they discovered fertile clay. Quite a different bottom structure is however found in the northern portion of the Zuiderzee: here it is irregular the depth is much greater the bottom, dropping here and there to 40 m. The movements of the tides, the accelerations of the currents are there also of a more intense nature.

Between these two different formations of the seabottom, is the area, which is intended for the large, enclosing dam, 30 km long which may be called the basis of the reclamation scheme, and will connect North Holland (at Wieringen) with Friesland (at Zurig). The construction of this dam therefore does not only mean the laying of foundations in deep water, but at the same time the taking into account and running the risk of rapids and stormy billows coming from the North sea, during seven years of labour. As a second stage in this gigantic undertaking will follow the draining of the enclosed Zuiderzee, and to prepare the occupation of the four polders. That the preparatory investigations for this work have taken years, will be easily understood. History mentions several projects: even as long ago as in the 17th. century (in 1667) it was suggested by HENDRIC STEVIN" to drive the fury of the North-sea from the Netherlands by enclosing the Zuiderzee with a dike between the islands and as far as the Frisian coast". The formation of the Zuiderzee Association in 1886 may in fact be considered the beginning and the Zuiderzee Act of 1918 as the terminal point of the plan which is now being carried out. Two causes are pointed out in

the Act as having hastened the realization of the plan: the war of 1914—1918, which brought into strong relief the dependence of the Netherlands on food supplies from abroad, and the gales of 1916, which made breaches in the 320 km long coast-line of the Zuiderzee and seriously endangered the safety of the surrounding districts.

The reduced value of money resulting from the war, has naturally caused the estimate of the cost to be considerably increased: whereas originally the total amount was calculated at 200 million florins, the drainage and the cultivation of the reclaimed soil is now estimated at 365 million. If the area of the land which has meanwhile been rendered productive, is deducted therefrom, and the interest on the necessary capital added thereto the total expense may be put at 454 million. On the other hand, the Director General of the Zuiderzee works estimates the capital value after the completion of the entire task (which has been assumed to take 23 years) at 510 million for 224 000 ha of polder land ready for cultivation.

The work commenced in 1920, under the supervision of the engineer H. WORTMAN included first of all the construction of the heavy enclosing dam Wieringen—Zurig, the building thereof being entrusted to the Zuiderzee works Execution Company (M. V. Z.) formed for that purpose, a combine of four large Dutch contractors. The same enterprise has also to complete in three years' time the enclosing dam 18 km long, between North Holland and the island of Wieringen, by which means a (North West) polder of 20 000 ha may be formed even earlier. The other three polders have an area of 56 000, 95 000 and 53 000 ha, respectively.

The large enclosing dam of the Zuiderzee will have a height of 7.25 m above A. P. (Amsterdam level) and

a top width of 2 m, whilst an inner ledge (berm) of 30 m will serve for the construction of a double track for a railway and other means of traffic. In the dike 25 locks will be built, each of a width of 12 m, and for navigation purposes one lock for vessels of a capacity up to 2000 tons and one for vessels of a capacity up to 6000 tons.

This enclosing dam, when completed (in August 1932) will form together with the boundaries of the adjoining provinces and of the new polders, the circumference of the Yssellake, which will have a level of 0.40 m below A. P. (Amsterdam level). The polders will be situated from 2 to 5 m below the average level of the sea and therefore be hardly lower than the Yssel lake level. When the Yssel lake will have become a fresh water lake, provinces such as Friesland and North Holland will derive therefrom as much benefit for the irrigation of their lands as from the draining thereof: this advantage alone has already been estimated at one million florins.

The only drawback, which is to be expected from the draining of the Zuiderzee, is the abolition of the Zuiderzee fisheries, which furnish to some 3000 fishermen and their families a rather poor livelihood and which yield about two million florins gross. The Zuiderzee Relief Act provides for those cases, where fishermen are unable to find any other means of subsistence (in agriculture or in the fresh water fishery to be started in the Yssel lake). This will naturally be a very gradual process of absorption.

While the Wieringer lake polder is formed, which will take ten years, the poldering of the so called Hoornsche Hop (S. W. Polder) will be started. Subsequently the N. E. Polder (on the Southern border of Friesland) and finally the S. E. Polder (the largest) will be taken in hand. The four polders are jointly expected to produce 224 000 ha of fertile soil: the draining will be undertaken, after

so called lake dikes have been built to shut off the drainage area. The drained lands will then be divided into polder sections and afterwards provided with canals and ditches, main and country roads, bridges and locks.

The occupation and cultivation of the new soil of the Netherlands will chiefly attract an agricultural population: an attempt has been made to express the possibilities and the potential profits in figures. Taking the density of the population of the province of Zeeland as a normal basis, it is calculated that 5000 farming industries of 40 ha each may give employment to 40 000 persons. These 40 000 together with the members of their families, and other persons manufacturers, tradespeople, clerks, will constitute a population of 200 000, who through their chief source of subsistence, will greatly increase the production of the soil, and consequently enhance the food supply of the entire population. According to another estimate, which however remains wholly subject to prices of land and produce, average leases for farms of from f 125 to f 150 a year per ha will be obtainable when the new grounds are being disposed, of, and the sale price will be fls. 3000 per ha. This however is only calculated for the 70 % heavy clay soil: the lighter clay soil would yield proportionately less. After deducting 5 % area for roads, canals etc., the capital value would then amount to:

f	43 916 000	for the N.W. Polder	
	123 780 500	„ „ S.W.	„
	222 069 000	„ „ S.E.	„
	<u>120 972 500</u>	„ „ N.E.	„
Total f	510 738 000		

To this must be added an estimate of a money value of 100 million florins to be derived from the above

mentioned advantages resulting from easier water supplies and drainage of extensive agricultural areas in North Holland and Friesland. Compared with the total cost of enclosing and draining viz. 544 million florins, the capitalized proceeds are valued at 610 million florins, the prospects may thus be considered very favourable. Even if these estimates should represent a too optimistic view of the future (the total costs will amount to 800 millions), they still contain a basis, on which we may confidently found the prediction that the draining of the Zuiderzee will prove to have been economically justified. The profits of course will only be realised, by degrees, and it will be also necessary to provide financially against emergencies which may arise during the construction of the enclosing dam and against the uncertainty of prices of land and produce for so long a period. Yet all such possible drawbacks would be outweighed by the indirect advantages, which may accrue from the creation of a wholly new area, to trade, industry and traffic, to the public finances, and to the labouring classes by giving them greater opportunities for work, even during construction.

On the 29th of Juni 1920 the first load of sand was emptied into the Amsteldeep, the strait between North Holland and Wieringen. This was the historical moment of the commencement. A new generation will have appeared, before the last hand will complete the work. In the history of the Netherlands the draining of the Zuiderzee signifies an extension of its territory, a peaceful acquisition, realised by labour exclusively from our own country, with the whole-hearted approval of all its people and directed towards the development of the welfare of a fast growing population, notably in the domain in which this country has registered its most brilliant victories. The country of LEEGHWATER and

LEEMANS, of CONRAD and CALAND, of KRANS and LELY — the last named being the initiator of the drainage scheme referred to above — does not exceed its power in accomplishing such an achievement.



CHAPTER IV.

THE POPULATION.

The population of the Netherlands, although at the present time manifesting a strong national unity, is one of the most complex in Europe. Its origin is to be traced to two entirely differing peoples: the Alpine and the northern races. In later times, two German tribes viz. the Franks and the Saxons have been added thereto as chief elements.

Currents of population usually follow two natural channels, rivers and coasts. In this way one of the oldest peoples of Europe the brown-eyed and round-headed Alpine race, entered our country along the Maas and the Scheldt, and thus became the chief element of the population of Limburg, North Brabant and Zeeland. A subdivision of this race, coming from the North Coast of France, has spread along our coast and very probably settled in Zeeland. Many centuries afterwards, there arrived from the North the second large current of population, the tall, slim, fair and blue-eyed people, of whom the inhabitants of the Northern provinces show the purest characteristics.

As a third factor in the constitution of the Dutch people, we also find many centuries later the Frankish and Saxon races coming from the East. It was especially the Saxon stream which so strongly influenced the formation of the population, which branched off from Twente, both in a Northerly and Westerly direction, and mixed with the older Frisian population in West Friesland and Holland. But towards the South East of the country we find the traces of the Frankish race, although in a very mixed form.

After the settling down of the three principal migrations

referred to above, the population of the Netherlands further got repeatedly mixed with foreign elements. This was partly due to the geographical position of the country and the seafaring habits of the people. Commerce and navigation have always permanently attached numerous foreigners to the Netherlands. Later our country where the right of asylum has at all times been fully recognized, absorbed various groups of refugees viz. the Huguenots from France and the Israelites from Portugal. A highly interesting field of observation opens before the intelligent foreigner when in the idioms and in the folklore of the Netherlands, he can trace the various elements of which the population is composed.

In spite of the diversity of its origins, the population has gradually consolidated into a unity, which is clearly shown in the politics as well as in the national character of the Dutch which in many respects is different from that of their nearest neighbours. Neither the French, nor the German, and neither the British nor the Belgian national character, can be considered identical with that of the Dutch. Without doubt the struggle against and the taking advantage of the water, which has been at the same time the enemy and the friend of the Netherlands, has largely set its mark upon a people, distinguished by boldness and perseverance, soberness and sturdiness, coolness of head and yet warmth of heart, faithfulness and reliability, a strong sense of freedom and independence, conservatism and susceptibility to religious influences. Primarily the Dutch are not impulsive and spontaneous: they wish to think before acting and therefore take up a reserved attitude towards whatever is new. But notwithstanding this, modern technique has quickly conquered the industrial life of the Netherlands, as shown by the position which this country occupies in such matters as aerial navigation and wireless installations.

It is quite obvious that the population of the Netherlands, as it is constituted at present, developed according to the nature of the soil and the distribution thereof. Of the 6.8 million inhabitants in 1920 (some of the following data are based upon the census taken in 1920) one million were engaged in industry, 600 000 in agriculture, 270 000 in commerce and 260 000 in transport. In the two last branches of industry the Netherlands are proportionately exceeded only by England in so far as regards the percentage of persons employed in them. In former years the figure for agriculture was considerably higher: the removal of country people to large towns has however withdrawn from that manner of earning a livelihood many, who found work in factories. In the years from 1900—1920 the number of agricultural labourers only increased by 0.7 %, that of workers in industry however by 29 %, in commerce by 20.4 % and in transport by 37 %.

The increase of the town population at the expense of the rural districts has progressed to such an extent, that now the four largest towns (Amsterdam, Rotterdam, The Hague and Utrecht) contain about 25 % of the total inhabitants of the country.

As a result of the rapid growth of the population, in the last decades amounting to from 1.24 to 1.42 %, equal to about 100 000 inhabitants per annum since 1920, the density of population has reached a high degree. During the last half century the number of inhabitants per square Kilometre has increased from 121.6 to 227.4 (in 1925), so that shortly the population will have doubled. The causes thereof can not be attributed to the high birth-rate, which, since 1900, with few interruptions has been declining viz. from 31.5 per 1000 of the population in above year to 22.8 in 1929. The death-rate on the contrary has taken a very favourable turn: between the above

mentioned years it fell from 17.9 to 10.7. The marriage rate affords no clue to the fall in the birthrate: the number of marriages in the Netherlands per 1000 inhabitants in the middle of the 19th century, and that in 1920 are exactly equal viz. 7.4. The balance of the birth-rate, thanks to the decline in mortality, has considerably increased, which is quite obvious when we compare the average figures of births and deaths for the years 1850 and 1929, which declined respectively from 33.5 to 22.8 and from 26.6 to 10.7. In this connection, the amount spent by the State on public health and which between 1920 and 1926 was increased from f 665 000 to 4 824 000 a year deserves notice. One of the fruits of this Government intervention is the enormous decline in infant mortality viz. from 195.4 per thousand in 1850 to 59.0 in 1929.

In reviewing these statistical figures we may conclude that the population of the Netherlands evinces on the whole a sound development in respect of its increase in number, a development, which given the only possible extension of territory by the draining of the Zuiderzee, and the clearing of vaste lands, has hardly kept pace with by the increase in the sources of Dutch prosperity. The fall in the birth-rate, though largely exceeded by that of mortality, is in itself a phenomenon, which cannot be considered to be favourable to popular strength and gives all the more rise to anxiety as the decline of mortality approaches its natural limit.

In the division of the sexes the population of the Netherlands shows little difference, scarcely some 100 000 souls, so that about 1015 females come upon 1000 males.

As regards religious sects, the population is divided into Protestants, Roman Catholics and Israelites. Per 20 000 inhabitants there are respectively 12 560 Protestants, 7122 R. C. and 218 Israelites. The foreign contin-

gent in the Netherlands constitutes a very limited number of the inhabitants: of the 6 565 314 in 1920 there were altogether 112 059 of foreign nationality.

Information about the movement of population in the Netherlands may be given by the Nat. Bureau for Documentation, The Hague, Emmastraat 34, and by the Central Office for Statistics, The Hague.



CHAPTER V.

CONSTITUTION OF THE STATE.

It is impossible to write about the form of government of the Kingdom of the Netherlands without mentioning the champion of the freedom of conscience, WILLIAM Prince of Orange, called "the father of the Fatherland" and who brought about the close union which has existed, until the present day, between the Netherlands and the House of Orange. The Constitution, which is the embodiment of that form of government, bears the mark of the work of his life in the fact, that it conferred the crown of the Netherlands in hereditary possession upon WILLIAM FREDERICK, Prince of Orange, who was proclaimed King in 1813, when the Netherlands regained their complete independence, and upon his lawful descendants. Even though not a single male offspring of the original founder is now living the Crown is still in the possession of the House of Orange and is now borne by a female descendant.

But also in another sense the Constitution of the Netherlands perpetuates what WILLIAM, Prince of Orange (William the Taciturn) aimed at and secured. More than two centuries after his death the United States of America wrote in their Constitution: "Everywhere reigns complete religious freedom".

The majority of European countries followed this example by introducing that principle and, in 1798, also the Netherlands. Art. 5 of the Constitution reads: "The law, whether protecting or punishing is equal for all. It is only concerned with acts never with sentiment. And art. 19: "Every citizen is free to serve God as his conscience dictates to him."

This fundamental principle of government, purchased

by Prince WILLIAM of Orange with his life, is found again in the Constitution of 1914, and is likewise contained in the revised Constitutions of 1848, 1887, 1917 and 1922. The rights guaranteed to every citizen of the Netherlands include: freedom of religion, liberty of the Press, the right of association and assembly, equal protection for persons and property.

The development of the Constitution into its present form cannot indeed be dissociated from the application of the above principles. The Netherlands are a constitutional monarchy and therefore the reigning sovereign's prerogatives are limited by the Constitution, which by the introduction of universal suffrage for both males and females has given great influence to Parliament, which shares the legislative power with the Queen. The Queen as such cannot be held responsible, the Ministers are answerable for all Government Acts and Royal Decrees which they countersign.

Nevertheless the rights of the Crown are still being maintained in a number of important matters. Queen WILHELMINA, who has occupied the throne since 1898, has for instance the chief control over the foreign affairs and the Dutch East-Indies and West Indies and over the Treasury: she is Commander in Chief of the Army and Navy and she has the right of coinage, to declare war (subject to the consent of the States-General), to issue patents of nobility and bestow decorations, to grant pardons, to decide in disputes between provinces and towns or between towns mutually, and to dissolve Parliament.

The enforcement of laws, for which Ministers are responsible, has to a large extent been delegated to the provincial and municipal authorities.

It will appear from the above that the liberty and equal rights of the Dutch citizen are fully guaranteed; in

the eligibility for State appointments all are equal as well. It must not be inferred however from what has been said that in the Netherlands every kind of influence would be tolerated. The Constitution indeed forbids associations which aim at disobedience to the law, which advocate corruption of public morals or which interfere with the exercise of other people's rights. And also in this restriction the idea of government, as conceived by Prince WILLIAM OF ORANGE, is clearly shown: personal liberty, enjoyed within the frontiers of the country, which would defend this liberty, if necessary by force of arms, is not and can never be compatible with lawlessness. It must on the contrary take the form of subjection to the law, on which the maintenance of public order is based. Even religious freedom is bound to observe that principle by art. 172 of the Constitution: "The King (Queen) shall see that all religious denominations shall keep within the bounds of obedience to the laws of the State".

It will be plain from the above that the Dutch nationality (acquired by descent or birth or by naturalisation) whilst having many privileges, also has its duties. Foremost amongst these the Constitution mentions: obedience to the law; others are: to assist in the maintenance of the independence of the country and to send all children to school.

* * *

The Parliamentary system, which is based on the Constitution of the Netherlands, governs the practice of political relations. The proportionate representation ensures that in the States-General (art. 78) the whole of the population of the Netherlands shall be represented and the universal suffrage has dissociated such representation from any favouritism with regard to social position or means. Legislation as a rule originates with Ministers:

the Second Chamber however has the right of initiative in this matter. The discussion of any Bill however by the Second Chamber, which consists of a hundred members, must be preceded by the advice of the Council of State, a College presided by the Queen, which in the event of there being no sovereign and also no regent would exercise the Royal prerogatives. This Council numbers 14 members, who are appointed by the Queen.

When a Bill has left the Council of State, it comes before the Second Chamber. If passed (for which an absolute majority of votes is required) it then goes to the First Chamber which is composed of fifty members. This Chamber however, unlike the Second, has no power of amendment and can therefore only accept or reject. The decision of the First Chamber is followed by the approval or non approval of the Queen. In the latter case it is possible that the Queen may dissolve either or both Chambers (to which she is entitled by virtue of art. 73 of the Constitution), which must result in the election of new Chambers within 40 days.

A consequence of the Parliamentary system observed in the Netherlands is that as a rule a Parliamentary Cabinet represents the Government. An extra Parliamentary or Business Cabinet only then comes into power, when the States-General contain no political majority, capable of submitting a Government programme as basis for a homogeneous Cabinet.

The Departments, each with a Minister at its head, now number nine, viz.: Home Affairs and Agriculture; Foreign Affairs; Justice; Finances; Defense; Colonies; Waterstaat; Education; Arts and Sciences; Labour, Commerce and Industry. The meeting of Ministers constitutes the Council of Ministers, presided by the Minister-President. A Cabinet Council is that same meeting, presided by the Queen.

The members of the Second Chamber, elected by all male and female Dutch citizens of 25 years or over, sit for four years and retire simultaneously. The members of the First Chamber sit for six years, half of them retiring every three years, and are elected by the Provincial States, which in their turn are elected by an electoral body, which now numbers ± 4 million persons.

* * *

The Provincial administration in the Netherlands has at its head the Queen's Commissioner and is carried on by the Provincial States, which are elected for four years, on the basis also of proportionate representation. The daily Government of the province consists of the Deputys States, elected by and from amongst the Provincial States, usually six members, under the chairmanship of the Queen's Commissioner, who in the Provincial States has an advisory vote only. The Provincial Registry has charge of the execution of the resolutions of the Provincial States and of that of Acts of Parliament, in so far as the execution thereof shall have been entrusted to the Provincial administration.

Like the members of the Provincial States, those of the Municipal Council are also elected for four years by the same body of voters by whom the members of the Second Chamber and the Provincial States are elected. The daily administration of the municipalities — numbering about 1100 — is carried on by the burgomaster who is appointed by the Queen for six years and the aldermen, who are elected by the Municipal Council.

In the Council the burgomaster, unless he is a member thereof, only has an advisory vote and he is chairman of the Council. He carries out all resolutions thereof and is likewise responsible for the execution of Acts of

Parliament, in so far as the Municipal administration shall have been entrusted therewith. The Municipal Offices attend to all matters, with which the administration of the Municipality is concerned.

* * *

If the Constitution of the State, according to the above mentioned institutions, is a concrete whole both as regards the introduction and the execution of Acts of Parliament, there also exists, for the maintenance and punishment of any infringement thereof, a solid system of authoritative control: The members of the judiciary dealt with in a following chapter, are appointed by the Queen for life and are in their judgments entirely subservient to those Acts. Citizens of the Netherlands also find a guarantee for an independent administration of justice in the appeal to a higher authority, which is open to them from the lowest, the District Court to the highest, the Supreme Court.

The maintenance of the law is further entrusted to the State Police of which the Solicitors-General of the High Courts of Justice in their respective districts, are the chiefs; to the city Police of which the Burgomaster is the head; to the Constabulary, a mounted police corps, which forms part of the State Police; and to the Military Police, which is a part of the Army. The military may be called out for the maintenance of public order.

The defense of the territory and the independence of the country is entrusted to the army and navy and indirectly to all Dutch citizens, if called upon, either to perform military duty, or to allow soldiers to be quartered upon them (against compensation) and to give up any property requisitioned. Foreigners also may have the

duty imposed upon them to assist in maintaining the independence of the country.

* * *

Finally a few words with regard to Netherlands nationality, which one owes to descent and birth, or may be acquired by marriage or naturalisation. In order to get naturalised it is necessary for the applicant to be 21 years of age, to have resided for 5 years in the Kingdom or its overseas territories, and to pay a sum, varying from f 200 to f 1000, as determined by the assessment in the Government income tax. Naturalisation of the husband includes also his wife and children, and is subject to regulation by Act of Parliament.

Netherlands nationality may also be lost viz. by marriage with a foreigner; by being naturalised in another country; by entering (without permission) the service of a foreign power; by being born outside the Kingdom, followed by residence abroad for more than ten years after coming of age, and neglecting to declare that one desires to retain the Netherlands nationality. Citizenship is obtained after a residence of 18 months in the Netherlands or their overseas territories.

Constitutional rights, of which a few have been referred to above, apply to the Dutch as well as to citizens and foreigners. Only born and naturalised Dutch however are eligible for member of the States-General, the Provincial States or the Municipal Councils.



CHAPTER VI.

NATIONAL DEFENCE.

A. The Royal Army.

The central army administration is under the control of the Department of Defence, at the head of which is the Minister of Defence, responsible for such control to the Crown and the National Assembly.

The Council of Defense forms a permanent advisory body, to assist the Minister if necessary in matters of importance concerning the defence of the country. The official members are the Chief of the General Staff, the Chief of the Naval Staff, the Commander of the Fieldarmy and others; four non military members are appointed by the Queen.

An independent Army Commission has to examine whether or not the money, voted for the army, is being used for such purpose in a correct and effective manner.

The Kingdom is divided into four Military sections; commanders of these sections are the divisional commanders of the Fieldarmy. They are stationed at: The Hague, Arnhem, Breda and Amersfoort.

For the enrolment of those liable to military service, the State is divided into 12 conscription-districts; the command of each district is in the hands of a district-enlistment-commander.

The Chief of the General Staff has under his orders the Military Staff College, the Topographic institute, and the Military survey, the Government postal pigeon service, the Air force corps, the Training company of the motor service, and the Military history records of the General Staff.

The troops, which on mobilisation constitute the Fieldarmy, are already in peace time under the orders of the Commander of the Fieldarmy. The Fieldarmy on a peace footing comprises the Head Quarters of the Fieldarmy, four divisions, the Light brigade, the Regiment of coast artillery, the Corps of air defence artillery, the Regiment of engineers and the Corps of pontonneers and torpedists. Each division consists of a divisional staff, two infantry brigades and one artillery brigade. The Light brigade is composed of a staff, two regiments of hussars, the Cyclist regiment and the Corps of horse artillery.

In time of peace the positions and fortifications are under the supervision of a Staff for the Position, of Holland and a Staff for the Position of Den Helder.

The infantry consists of the Infantry Inspectorate, 8 infantry brigades, 2 training schools for shock troops, the Regiment of cyclists, the School for reserve officers of the infantry, the Infantry range-comp and the Training school for rifle practice. An infantry brigade is composed of a brigade staff and 3 regiments of infantry. The First Infantry brigade (Brigade of Grenadiers and Riflemen) comprises the Grenadierregiment, the Rifleregiment and a regiment of infantry.

The first training period of the infantry conscripts is five and a half months, which is extended to 9 months, if they are to be trained for non commissioned officers and to a period not exceeding 12 months, if entered for the training to a commissioned rank.

The cavalry consists of the Cavalry Inspectorate, 2 regiments of hussars and the Riding school, the last mentioned also comprising a Cavalry horse depot and the School for reserve officers of the cavalry. Each regiment of hussars consists of a staff and two halfregiments. The first training period for cavalry conscripts is 15

months, except for those entered to be trained for reserve officers, whose first training period does not exceed 12 months.

The artillery comprises the Artillery Inspectorate, 4 artillery brigades, the Corps of horse artillery, the School for reserve officers of the field artillery, the Artillery Horse Depot, the School for reserve officers of the foot artillery, the Regiment of coast Artillery, the Air defense artillery corps, the Military supply service, the Experimental commission and the Artillery range-comp.

An Artillery brigade is composed of a staff, 2 regiments of field artillery and a artillery-train division. The IIIrd Artillery brigade also includes the 1st Regiment of foot-artillery and the IVth Artillery brigade the 2nd Regiment of foot artillery (mechanised).

The first training period for the foot-artillery conscripts is five and a half months, or 9 months, if they are trained for a non-commissioned rank; for the mounted men of the field artillery and for those, being trained for officers, 12 months.

The engineer corps consists of the Engineer Inspectorate, the Regiment of engineers (pioneers, liaison troops, lighting supply troops, and the School for reserve officers of the engineers), the Corps of pontonneers and torpedists and the Military gasschool.

The Corps of pontonneers and torpedists is composed of a training company for pontonneers and a training company for torpedists. The first training period for conscripts is the same as that for the infantry.

The Air force corps is for administrative purposes divided into 2 companies; the corps garrisoned at Soesterberg, has detachments at Schiphol, and at Gilze-Rijen. The training of pilots and observers takes place at Soesterberg. For both functions

professional as well as reserve airmen are trained, who have volunteered with the airforce.

In addition to the Army service corps, the army includes the medical service of the land forces. This consists of three independent parts, viz. the Medical service, the Veterinary service and the Pharmaceutical service. There are 6 hospitals, as well as 4 veterinary hospitals and a Government medical supply depot. To the Medical service also belong 4 companies of hospital and ambulance attendants. The first training period of conscripts for the medical corps is five and a half months (for ambulance men and bearers) or eleven months (for hospital attendants) whilst the conscripted medical and dental students are trained for reserve medical officers or reserve dental officers.

The professional officers are trained at the Royal military academy, at which institution professional officers for the Colonial army are likewise educated. This training takes 3 years.

The training of professional non-commissioned officers takes place with the corps, whilst training courses for non-commissioned officers of higher rank are held, as far as necessary, annually during the wintermonths.

The Royal constabulary force, a State police corps, military trained, consists of an Inspectorate and 4 divisions. The corps is under the jurisdiction of the Minister of Justice, otherwise, as forming part of the army, under the Minister of Defence. The divisions are divided into sections, which are composed of a number of mounted and foot brigades. Besides the Royal constabulary force the Corps of police troops, charged in peace time with the military police service in the garrisons and with guarding military works, buildings, depots and grounds, consists of the staff, 4 companies and the Depot. The companies are sub-divided, each subdivision consisting

of a number of groups. With the 2nd company a mounted division is found, but in other respects the corps performs its duties on foot or on bicycle.

The composition of the army further includes the Voluntary landstorm (militia), consisting of an Inspectorate, the Preliminary training institute and four corps for special purposes (motor service, shipping service, air guard service and railway service).

The Preliminary training institute consists of 6 landstorm-groups, comprising together 20 landstorm units, each unit is divided in a number of classes.

At the institute young men, below the compulsory military service age, and who have joined voluntarily receive about one year's preliminary training; after having obtained a certificate proving that the preliminary training has been passed satisfactorily, the conscript obtains the right to 4 months reduction from the first training period. The institute also affords training for non-commissioned rank. The instruction is chiefly in the hands of reserve personnel whilst for the staff, the administration and the supervision, professional servicemen are attached to the institute.

By virtue of the Military Service Act, of the \pm 70 000 registered men 19 500 are annually assigned for ordinary military service (by drawing lots) whilst the remainder, extraordinary conscripts, are in peace time free from performing any active service; not more than 1000 men are enrolled for the navy. The conscription year is the year, in which those concerned attain the age of 20 years.

The first training is as a rule performed uninterruptedly.

For lance-corporals and privates further military attendance is restricted to 40 days; these are usually performed in two periods. As regards non-commissioned officers each of the additional training may last 7 days longer; no further military attendance is required of the auxiliary airforce troops.

Those conscripts, who have been trained for reserve officer or who, before attaining military age have voluntarily joined to be trained for reserve officers, are bound to perform active service with the troops once every three years and to attend twice a military course.

Lance-corporals and privates remain liable for military service until the 1st of October of the year, in which they attain the age of 40 years; for non-commissioned and reserve officers the period of service continues until they have reached their 45th year.

* * *

B. The Royal Navy.

Organisation. The Minister of Defence is responsible for the Navy. On the 1st of September 1928 the separate Navy and War departments have been abolished and formed into one department. Besides the Royal Navy, this department has also under its charge the Hydrographic Service and Pilotage.

The Chiefs of Naval Staff, Personnel, Material and of supplies, act as the Minister's advisers, both with regard to the employment of and the maintenance of the Royal Navy.

The main base of the fleet in the Netherlands is at Willemsoord (Den Helder) where a flag officer is in command. Subcommands are established in Amsterdam and at Flushing, which places may be regarded as auxiliary-naval bases. In the event of war the supreme command of sea and land forces will be combined in one hand.

In the Dutch Indies the Royal Navy consists of cruisers, submarines, destroyers, a naval air force and strips for local defence, as well as surveying vessels. The Governor-General is commander in chief of the naval forces in the

Dutch Indies, subject to the administrative relations with the Department of Defence in the Netherlands.

The Naval Department in the Dutch Indies at Batavia is charged with the care and the management of the navy, this Department being under the control of a flag officer with the title of commander in chief of the Navy and Chief of the Naval Department in the Dutch Indies. This Department, in addition to matters regarding the Royal Navy, is also charged with the colonial marine and magnetic and meteorological observations. The colonial marine consists of a rather great number of vessels, forming together a Government fleet for civil services, for the lighting, buoys and beacon service, harbour and pilot services, and the supervision and safeguarding of the interests of shipping in general.

The main base of the Navy is at Sourabaya, where also the naval dockyard is situated. A naval officer is in command with the title of Commander of the Navy at Sourabaya.

Material. The fact that the Navy's main field of operation is in India and that all training is carried out in the Netherlands, determines the nature and the distribution of the floating material in both hemispheres.

There are stationed in the Netherlands: three iron clads of 5000 tons displacement, three armoured gunboats, four unarmoured gunboats, twelve minelayers, four minesweepers, eleven submarines of 180—650 tons, thirteen torpedo boats, together with several tenders.

The naval airforce of the Netherlands is composed of fighters, bombers, as well as of training-planes.

For the service in India: an old iron clad of 6500 tons; two modern cruisers of 7000 tons; eight destroyers; twelve submarines; six minelayers; four minesweepers; three gunboats; three surveying ships; one tender for

submarines "Pelikaan" (2500 tons) and a few vessels for local defence such as small torpedoboats and coastal motorboats are available.

The material for the Naval Air Force consists of long distance reconnaissance-planes (all hydroplanes) and Fokker fighters.

P e r s o n n e l. The Royal Navy is composed partly of men who enlist voluntarily and partly of conscripts.

Whilst in the Netherlands the fleet is exclusively manned by Europeans, in the Dutch Indies natives are also employed in the Service. In 1929 the personnel numbered 15 236 men.

Naval officers receive their training at the Royal Naval Institute at Willemsoord.

Boys are trained on board the H. M. S. "Noord Brabant" at Flushing; the electric artificers, telegraphists and signalmen are trained in the Naval barracks in Amsterdam, whilst all other training for the artificers, as well as for the naval conscripts is carried out at Willemsoord. The native complements of the Royal Navy receives their first training at the Training school of Macassar.

The training for the Naval air force takes place at the aerodrome "de Kooy", near den Helder and at the seaplane station "de Mok" on the island of Texel.

It may finally be mentioned that the more than 2 ½ centuries old Corps of Marines has its own barracks at Rotterdam.

H y d r o g r a p h y. For surveys on behalf of charts and pilots in home waters two surveying ships are commissioned in summer time and in the Dutch Indian Archipelago four ships are doing this work all the year round, whilst those men of war, which visit the West Indies, carry out hydrographical work in those waters.

In the Netherlands the Hydrographical department issues 14 detailed charts of the estuaries and one chart on a smaller scale of the Zuiderzee, as well as two coast charts on a still smaller scale; further a pilot for the Dutch coast with a list of lights and a harbour pilot.

Since 1858 surveying ships in the Dutch Indies are unceasingly employed in making a systematic survey of the extensive Archipelago, with literally thousands of islands and coastlines altogether considerably longer than the circumference of the globe, which labour will have been completed in 1931. This however is by no means the end of the work. On the contrary necessary revision surveys will require a continuation thereof on the same scale. On the basis of these surveys the above mentioned department issues about 350 charts of the Archipelago on various scales, together with four pilots and a list of lights. Tide tables are issued by the Navigation Service Bureau and the Royal Magnetical and Meteorological observatory subdivisions of the Naval Department at Batavia. One half of the above mentioned number of charts gives the coasts and navigable channels of the Archipelago on a scale of 1 : 200 000 and smaller. The other half are local charts, whilst in addition, the charts of both categories contain a large number of plans.

Of the West-Indies 8 seacharts and one guide are issued.



CHAPTER VII.

PUBLIC FINANCE.

State Finances. The Budget Estimates of the Netherlands, which the Government submits annually to the Second Chamber on the 3rd Tuesday in September, this being the date of the solemn opening of the session of the States-General by the Head of the State, compares the Revenues, of which the State taxes form the chief source, with the Expenditure distributed over 13 Sections being those of the Royal House, the High Colleges of State, the National Debt and the nine Governmental Departments. The State budget is divided into ordinary and capital expenses; in round figures they are constituted (in draft) for 1931 as follows:

Ordinary services	Capital services
Expenditure	Expenditure
Royal House. f 1 850 000 High Colleges of State and Cabinet of the Queen. 2 000 000 Foreign Affairs. 4 197 000 Justice 29 756 000 Home Department and Agriculture 22 908 000 Education, Arts and Sciences. 165 852 000 National Debt 84 792 000 Finances 54 104 000 Defence. 101 731 000 Waterstaat Department. 61 735 000 Labour, Commerce and Industry. 77 347 000 Colonies 6 159 000 Unforeseen Expenditure. 50 000	Home Department and Agriculture. f 306 000 National Debt 6 916 000 Finances 80 225 000 Defence. 627 000 Waterstaat Department. 57 282 000 Labour, Commerce and Industry. Memorandum
<hr/> f 612 543 000	<hr/> f 155 356 000

Ordinary services	Capital services
Revenues	Revenues
Total estimated Revenue f 603 447 000	Total estimated Revenue f 53 859 000
Favourable Balance . . f 9 096 000	Deficit f 101 497 000
Total Estimates:	
Favourable Balance Ordinary Services f 9 096 000	
Deficit Capital Expenditure 105 497 000	
Total Deficit f 110 593 000	

The National Debt of the Netherlands, which is administered by the Direction of the Ledgers of the National Debt, amounted on the 31st of December 1928 to a total of 2609 million florins, divided into 2450 million consolidated debt and 189 million floating debt. As a consequence of the circumstances incidental to the war the total debt rose between 1914 and 1922 from 1317 to 3543 million florins, so that in six years time 705 million have been redeemed. The interest on the capital debt in 1929 amounted to 113 $\frac{1}{2}$ million florins. The quotations of the types of interest, which had reached their lowest point in 1920, have since, with one break in 1923, moved in an upward tendency and have now again reached the 1914 level; those of the loans issued after 1914 (1916, 1917, 1918, 1919, 1922, 1923 and 1928) varied at the end of 1928 between 96 $\frac{3}{4}$ and 104.

As regards the revenue, a short summary is here given of the state taxation and rates:

real property tax, levied on real estate situated within the Kingdom; the rate amounts to 6 % for built on, 4.86 % for unbuilt on properties.

I n c o m e T a x, to which are liable:

- a.* all individuals residing within the Netherlands;
- b.* all foundations established within the Netherlands and which exercise some industry;
- c.* all individuals and corporations not residing or established within the Netherlands who in certain ways, specified by law, come in contact with the Netherlands.

The tax is levied annually and as regards those liable to income tax under letter *a* on the total net income as determined by legal enactment; and as regards the foundations referred to under *b*, on the net revenue; whilst, finally, those individuals and corporations who are not residing or established within the Netherlands, are taxed on the income earned by them in the Netherlands.

The tax is calculated on a progressive rate, which, by degrees, amounts to 13,5 per cent on a full year.

T o C a p i t a l T a x are liable:

- a.* all individuals residing within the Netherlands;
- b.* individuals or corporation not residing or established within the Netherlands who in certain ways, prescribed by law, come in contact with the Netherlands.

The levy is based on the net value of the capital as determined by law, in which, as regards the individuals and corporations, referred to under *b*, only such portions of their property are taken into account in respect whereof the individual or corporation liable to the duty may be deemed to come into contact with the Netherlands.

If the net value of the capital is less than f 16 000 (sixteen thousand florins) no duty is payable. If f 16 000 or over, but less than f 30 000 the duty is f 2 for each round sum of f 1000, in which it exceeds f 15 000. On f 30 000 or over, the duty payable is f 1 for each round sum of f 1000. A surtax of 55 per cent is levied in addition.

D e f e n c e T a x I is levied on the same persons and on the same basis as the capital tax.

The progressive rate rises, by degrees, to 6 per thousand in respect of a full year.

P e r s o n a l T a x is levied in respect of:

- a. the use of buildings with unbuilt on appertenances, situated within the Netherlands and amounts in general to 10 per cent of the rental value (subject to a rebate varying with the municipality) and $1\frac{1}{2}$ per cent on the furnishings (subject to a reduction of f 100). A surtax is charged in addition, which may rise to 20 per cent. All in respect of a full year.

As the principal exemption may be considered that in respect of factories, workshops, storage places and grounds used for the exercise of a profession or business;

- b. the employment, in the Netherlands, of persons for personal or household services.

The rate of this tax varies according to the legal category to which the domestic servants belong;

- c. the keeping, in the Netherlands, of horses.

Horses, used exclusively in the exercise of a profession or business are generally exempt;

- d. the keeping, in the Netherlands, of motor vehicles (automobiles and motor cycles).

The tax for a full year amounts to:

on motor cycles made for one person f 6, all others f 8;

on automobiles a percentage on the value, which will be not less than 2 % and not over 3 %.

To these amounts is added a surtax of not less than 80 % and not more than 100 per cent.

Only half the tax is levied in respect of motor vehicles which are exclusively employed in some profession or business; to one fourth in respect of motor vehicles used exclusively in the business of letting on hire or of that of contractor of passenger transport;

- e. the keeping, in the Netherlands, of pleasure craft.

- f. the keeping, in the Netherlands, of billiard tables.

The R o a d T a x is levied annually in respect of the driving of motor vehicles on the public roads, in the Netherlands.

The rate, calculated on a full year, refers, amongst others, to:

motor bicycles, of a weight exceeding 120 kg f 30, motor bicycles with sidecar f 40; automobiles, made for not more than 7 persons, per 100 kg f 6 with a minimum of f 48; if for more than 7 persons (motor buses), per 100 kg f 8; motor trucks, motor engines and such like, per 100 kg f 6,—, with a minimum of f 48,—.

Agreements have been entered into with various countries to exempt motor vehicles kept by their inhabitants, on the principle of reciprocity.

B i c y c l e T a x. All bicycles used in the Netherlands on public roads must be provided with a bicycle disc to

be renewed annually, and which is issued on payment of f 2,50.

Import and excise duties; duties on gold- and silver articles and statistical duty.

On various goods imported into the Netherlands an import duty is payable, which generally speaking, amounts to 8 per cent of the value.

Excise duty is payable on some goods, the principal excise duties levied being:

- a. that on wine, amounting to f 20,— per hectolitre and 20 cents surtax;
- b. that on spirits, amounting to f 200,— per hectolitre at 50 % strength, with 10 cents surtax;
- c. that on manufactured tobacco, amounting to:
10 per cent on the retail price of cigars;
25 per cent on the retail price of cigarettes;
15 per cent on the retail price of tobacco.

Gold and silver articles are also subject to a tax amounting to f 30,— and to f 1,50 per 100 grammes.

Finally a statistical duty is levied on all imported and exported merchandise, amounting to 1 per thousand of the value.

Stamp duty according to the size of the papers, is payable, subject to express exemption, in respect of various documents, including those drawn up abroad, of which those documents relating to proofs of private right agreements, acts, bond certificates undoubtedly form the most important category.

Subject to stamp duty are also insurance policies, exchange charges, securities, cession of property deeds, transfer certificates, bills of exchange and other commercial paper, leases and hire contracts, etc.

The Registration duty concerns the registration of deeds, which denomination likewise includes all household papers, letters, cards, drawings and all other documents, written, printed or otherwise produced. The registration consists in entering the whole or part of the contents in registers kept for that purpose.

Succession duty is payable on the value of whatsoever is inherited or obtained from the estate of an inhabitant of the Netherlands through his death.

Gift tax is payable on the value of any property obtained through gift from an inhabitant of the Netherlands.

Transfer duty is levied on the value of all real estate, situated or established within the Netherlands, and obtained by inheritance, legacy or gift from any person not being resident in the Netherlands.

The duties relating to succession and gift are payable according to a progressive percentage, which is also dependent on the grade of blood-relationship between the testator or donor and the recipient. The highest percentage is 37.

The transfer duty amounts to four per cent.

* * *

Provincial Finances. The autonomy of the provinces is based on the Constitution of 1848, and has been further extended in that of 1887. In conformity with the Provincial Act, last amended in 1929, the provinces have power to levy a surtax on the capital amounts of the following State taxes: the land tax, the property tax and the income tax; further a tax on provincial registrations and duties and remunerations in respect of the use or enjoyment of provincial works, institutions or proper-

ties, or for services rendered by or on behalf of the province.

The levy of the surtax on State taxes is subjected however to some restrictions, which aim partly at preventing the towns from being taxed at a higher rate than the country districts, and partly at preventing properties and incomes from being charged more than is permissible by the State, with a view to the levy.

Of the costs of the provincial government, the State takes for its account a. the salary and expenses of the Commissioner of the Queen in the province and of the provincial administration buildings; b. the allowance received by him for travelling and residential expenses; c. the maintenance expenses of the building intended as his residence, or, if not State property, the rent of such a building; d. the maintenance and furnishing expenses of the buildings, intended for the meetings of the States and Deputed States and for the provincial registration offices, as well as the rent payable in respect of such buildings if not State property.

The remaining expenses of the province are put on the provincial budget, including also all expenditure arising out of the execution of Acts and Government measures referred to the Provincial States, in so far as such expenditure shall not be chargeable to other parties.

Of old the task of the province included the construction and maintenance of waterworks, as well as contributing towards the costs of such works, in so far as they were maintained by others. According to the provincial financial statistics for 1926, the general expenditure in that year for the provincial waterworks in the Kingdom amounted to a total of f 1 351 217,—. The provinces also disburse large sums for protective works against inundations by sea- and river-water, and for canals and towing paths, bridges and locks, roads, ferries and steamboat

services, whilst no less considerable sums are given as contributions to such works undertaken by the State or by municipalities.

The progress of trade education imposed a fresh task upon the provinces. The care of the provinces is limited to the granting of subsidies, which have declined however as a result of the Industry Act passed in 1919.

The interest of the provinces in science and art is shown by their contribution towards the restoration of monuments such as church buildings and towers, having historical or antiquarian value, as well as for the arrangement of archives, whilst Friesland and Zeeland also maintain important public provincial libraries.

For the benefit of popular development some of the provinces now grant subsidies to public reading-rooms and libraries and to people's universities. Special attention is given by them to the promotion of agriculture and cattle-breeding. Contributions are given towards agricultural and horticultural training. Premiums are awarded in the interest of horse and cattle-breeding and poultry rearing. Subsidies are allowed to experimental gardens, agricultural and horticultural exhibitions and cattle-shows, butter and cheese control depots, agricultural representatives and the veterinary service.

The people's health is well cared for by the provinces by granting allowances to physicians and midwives, subsidies to institutes for vaccination, for diseases of the eye and for combating tuberculosis, for infants' welfare, district nursing and for the nursing of delicate children in convalescent homes and vacation colonies. The provinces of Groningen, Friesland and Drenthe have provincial testing services for merchandise and other goods. In every province the drink question is assisted by provincial contributions to societies which are working in its interest.

Towards the nursing expenses of indigent lunatics the provinces in 1926 contributed f 2.7 million. In North Holland the province itself owns an asylum, whilst Groningen, Friesland and Drenthe are jointly managing a home nursing institution.

At the end of 1926 the debt of the provinces amounted to more than 180 million florins.

The increasing need for electricity opened to the provinces a new field of labour. Following the example of the large towns, most of the provinces are establishing an electrical industry, either under their own management or in the form of a joint stock-company.

Contributions are also sometimes given towards providing water supplies.

The growth of provincial labours has resulted in no small an increase in the burden of taxation. This is now distributed as follows:

Provinces	Surtax				
	Land Tax		Personal Tax	Income and Property Tax	Total amount
	built	un-built			
North Brabant.	28	28	24	6	f 1 271 185
Gelderland	20	20	20	3	1 202 324
South Holland.	20	20	20	1	3 463 408
North Holland.	20	20	20	5	4 272 557
Zeeland	50	50	50	20	1 149 702
Utrecht	21	21	21	3	870 712
Friesland	50	64	50	20	1 940 735
Overijssel	27	32	24	12	1 391 843
Groningen	43	43	38	12	1 498 926
Drenthe	50	50	50	20	576 428
Limburg	20	24	20	8	666 778

The road taxes levied in North Brabant and Groningen yielded respectively f 960 000 and f 344 000. As a result of the road tax considerable payments are made annually out of the Road Fund to the provinces.

In connection with the restriction which the Act of the 11th June 1905 imposes on such provincial expenditure, as in a charge on the State, the provinces receive annually from the State Exchequer a fixed sum regulated by law. This payment amounts to a total of f 627 000.

* * *

Municipal Finances. As a result of the twofold task, which the constitution imposes upon municipalities, their care of municipal economy and their cooperation in the execution of Acts of Parliament, general Government measures and provincial ordinances, if so required, the municipal estimates, in addition to expenditure of a purely municipal character, include various items, which, by or in virtue of Acts of Parliament, have been charged to municipalities.

To such items of expenditure have belonged for some time past considerable costs in respect of education, police and poor law administration (including the nursing of indigent lunatics), altogether expenses which press very unevenly upon the municipalities.

Besides expenditure for services, touching both governmental and municipal interests, such as civil registries and election activities, the municipalities according to their very divergent situation and requirements, incur expenses in connection with public works, public safety, national health, housing, education, arts and sciences, agriculture, trade and industry, social aid. etc.

The municipalities derive their income chiefly from taxes, Government contributions and revenues (if any) from properties and industries.

They have power to levy rates specified by law, viz.: a surtax on land-, personal- and property tax (Government Taxes) and on the municipal fund tax (see hereafter), dogs-, amusements-, lodgers-, fire damage, and trading tax, license, funeral duties and others.

All taxation ordinances require the Royal assent.

The principal State contributions to municipalities concern education (for elementary education the stipends of the teachers, for intermediate and higher education contributions according to the expenditure thereon) housing, national health.

By virtue of an Act of the 15th July 1929, S 388, which will come into operation on the 1st May 1931, the financial relations between the State and the municipalities, consisting until that date of a fixed, unvariable and very divergent annual payment from the State to the municipalities will be regulated in a more equitable manner.

A fund will be established whereof the revenues in conformity with certain rules provided by law will be divided amongst the municipalities.

The revenues of this fund will consists of:

- a. the yield of a direct tax according to income, entitled "municipal fund tax", regulated by law and collected by the State;
- b. the yield of a surtax of 50 per cent on the property tax (a government tax), likewise collected by the State.

The net income according to the rules governing the State income tax shall form the basis upon which the municipal fund tax shall be levied.

In respect of unmarried persons and of persons forming part of a family living together, the taxable amount of the income will be assessed at a rather higher rate. The increase of the taxable amount will, as regards every

person, be dependent on the class, in which the municipality will range itself, at its own discretion, out of three classes instituted by law.

The tax is progressive and does not exceed 6 %. Municipalities may levy a surtax of not more than 80 %, to be fixed if desired at a progressive rate, on the municipal fund tax. They may go up to a surtax of 100 %, but then without progression, in the event of their having failed to balance the estimates, although the other levies may have been increased to reasonable amounts.

Such surtaxes will be collected by the State and paid direct to the municipalities.

Municipalities will receive annually from the fund:

1. 75 % of the salaries of the mayor and of the secretary up to a maximum of f 3000;
2. a payment per inhabitant, calculated according to a formula prescribed by the Act, whereof the factors are:
 - a. the taxable income as assessed for State income tax, calculated per assessed person and per inhabitant taken jointly;
 - b. same as 1 in respect of the municipality concerned;
 - c. the amount of the ordinary expenses which taken on an average for the years 1926, 1927 and 1928 have remained annually for account of the municipalities in respect of police, elementary education and poor law administration, including provisions made against unemployment, calculated per inhabitant for the municipality concerned;
 - d as c, calculated per inhabitant for the whole of the Kingdom;
 - e. the number of inhabitants of the municipality concerned on the 1st December 1927;

- f. the total amount of the product of the subdivision of the formula $\frac{a}{b} \times \frac{c}{d} \times e$ in respect of all municipalities jointly (it forms the denominator of the fraction and a to e the numerator);
- g. the yield of the municipal fund tax plus a surtax of 50 % on the property tax, and less the payments to the mayor and secretary.

A few additional stipulations are not mentioned here.

Municipal income tax may no longer be levied. For the first 5 years of the operation of the Act, municipalities, which have suffered too much from the abolition of municipal income tax and the loss of surtax on property tax to the State, will be guaranteed not less than 60 and not more than 85 % of their loss, out of the municipal fund. The capital sum, hereinafter mentioned, of the personal tax, which the State pays to the municipality, is previously added to the loss incurred by the municipality.

The State further pays direct to the municipalities:

- a. three fourths of the net revenue of the capital amount of the land tax, levied locally;
- b. the whole of the "personal tax" levied by the State as a direct tax for the benefit of the municipalities, on the base of rentable value, furniture, domestic servants, horses, motor cars, pleasure craft and billiard tables.

Municipalities have the choice of class for the taxation, certain liberty in taxing the basis of assessment of rentable value, the power to leave one or more of the bases, with the exception of rentable value, untaxed and retain the right to levy a surtax on the personal tax.

An advisory committee will assist the Government in the execution of the Act and give advice also with regard

to subjects, relating to the finances of the municipality.

Regulations touching State assistance to destitute municipalities, which are originally contained in the bill, were withdrawn by the Government during the consideration thereof. Such assistance therefore remains dependent on the views of the Government.

In the larger towns revenue from municipal works form an important part of the means used to cover ordinary expenditure. The tariff for services rendered by municipal concerns do not require the sanction of a higher authority.

With the approval of the Deputed States, municipalities may contract loans for extraordinary expenditure.

Such approval is likewise necessary in respect of actions at law, in which any municipal property is concerned.



CHAPTER VIII.

LEGISLATURE AND JUDICATURE.

The legislature in the Netherlands, initiated by Bills introduced by the King, the members of the Government or on the initiative of members of the Second Chamber, finds its basis in the approval of the States-General.

Of the positive law only private and penal law will be mentioned here; in other chapters reference has been made to various parts of the administrative and social laws.

Codification is the leading principle. In conformity with this constitutional principle there are five codes viz.: the Civil Code, the Commercial Code, the Code of Civil Procedure, the Penal Code and the Code of Criminal Procedure. The constitution however also authorizes the regulation of certain subjects by separate enactments. Lately for instance a separate Act has been passed relating to Cooperative Societies (1925) and one relating to Collective Labour Contracts (1927).

The three private law codes date from 1838. They have been strongly influenced by the French Codification, but other influences (old Dutch law) may also be traced. In no sense is Dutch law a slavish imitation of the French example.

The venerable age of these codes would easily lead one to think of absolute legislation. This is however not so, as constant efforts are made, through partial revision of the law to keep these codes up to date. In 1901 the Infant Acts greatly modified family law. In 1907 labour agreements were regulated anew in detail. In 1923 an alteration was made in the law of succession. A proposal for a new regulation of the land tenure agreements

was laid before the States-General in 1929. Commercial law also is being strongly modernised. In 1893 a separate Bankruptcy Act was passed, to replace the regulations, which until then were found in the Commercial Code. In 1924 maritime law was modified. Comprehensive regulations relating to Joint stock companies date from 1928. An amendment of the Commercial Code, whereby the legal position of captain and crew has been determined anew to satisfy modern requirements came into force on the 1st of February 1927. The law of legal procedure also is regularly reformed by partial modifications. In this way — only a few examples have been cited — petrification of the law is successfully prevented.

Penal legislation is of a later date: the Penal Code is of 1886, the Criminal Procedure Code became operative on the 1st of January 1926.

Both these Codes are therefore modern. They are moreover the results of independent, national labour, although in many respects advantage has been taken of the knowledge and experience gained in adjoining countries.

The Penal Code is particularly distinguished by two characteristics:

1. a very simple penal system which only recognizes three principal punishments: imprisonment, confinement (*custodia honesta*) and fine. To these however must be added special punishments and measures for particular groups of criminals, for children, psychopaths and lunatics. In 1929 moreover an Act was passed, making the detention of professional and habitual criminals possible. The application of this Act is in preparation;

2. a very great faith of the legislator in the judicature. The jury system is unknown in the Netherlands. The whole population is convinced, that the judicature is

proof against every influence of a political, religious or financial nature. The legislator has therefore dared not only to leave to the judges as regards the great majority of the offenses, the choice between the various chief punishments viz. between either of the two detention penalties or a fine, but to adopt all along the line the principle of abolishing minimum penalties: in case of conviction for murder for instance, the judge may at his own discretion — governed only by the special circumstances of each particular case — impose sentence varying from one day's imprisonment to imprisonment for life.

The Code has been kept up to date by subsequent enactments. These contain amongst others the already above mentioned special punishments and measures relating to children, psychopaths and professional or habitual criminals.

The Code of Criminal Procedure introduced in 1926 is marked by a great care for the interests of suspects. They and their counsel are granted a series of far reaching privileges during the examination and the hearing of the indictment, to ensure that all circumstances favourable to the accused shall be properly investigated.

Criminal proceedings can only be taken by the Public Prosecutor which, on a punishable offense becoming known, shall judge freely even if sufficient evidence exists, as to whether or not it may be in the general interest that a prosecution shall not be ordered. Should the Public Prosecutor conclude that such is the case, prosecution may be left behind or suspended (so called "opportunism"). Any arbitrary action is excluded here, as any Public Prosecutor may be ordered by his chief to prosecute — in the last instance a prosecution may be ordered by the Minister of Justice — whilst moreover those interested may apply to the High Court of Justice

or occasionally to the Supreme Council, which Colleges, after investigation, may order proceedings to be taken.

Army and Navy are partly subject to the common Penal Code, and partly to a supplementary military code. This last code, contrary to the Civil Code, still recognises the death penalty. There exists a separate military administration of justice with different rules for the army and navy.

* * *

The Judicial Organisation comprises: District Courts, Divisional Courts, High Courts of Justice and the Supreme Court. The Divisional Courts as a rule give judgment with three members. For simple punishable offenses, which come before the Divisional Courts, each such court possesses a so called single Court consisting of one member, called the police judge. Another single Court of the Divisional Court is the children's judge, who deals with all cases concerning children, both civil and penal. The High Courts of Justice pronounce judgment with three members. The Supreme Court as a rule with five members.

There are over a hundred District Courts. Before these are brought the less important cases, such as disputes concerning small amounts and practically all punishable transgressions with the exception of revenue cases (these are reserved for the Divisional Courts). Of offences against the law the District Courts only deal with simple poaching cases. Lately the District Courts have partly become competent in more important civil disputes (labour agreements, collective labour contracts), amongst other reasons also because proceedings before a district judge are more expeditious than before the Divisional Courts. From the verdicts of the courts in civil actions an appeal to a divisional court is possible,

cases concerning very small amounts excepted. Penal sentences which are subject to appeal — appeal is only excluded where in the circumstances of any punishable act only a small fine may be lawfully imposed — also come before the divisional court.

The Divisional Courts are established in the chief centres of 21 divisions. As a rule all matters which a district judge is not competent to try, therefore all civil disputes of a higher value and all the more serious offences are in the first instance brought before the divisional courts for trial. Appeals against their judgments are submitted to the High Courts of Justice. In criminal proceedings appeals are nearly always possible but not in civil suits in which the value of the claim does not exceed 400 florins.

The divisional court is moreover the Court of Appeal for verdicts of a district judge, in which appeal is possible.

There are five High Courts of Justice, viz. at Bois le Duc, Arnhem, The Hague, Amsterdam and Leeuwarden. The real task of the High Court of Justice is to deal with appeals from judgments given by the divisional courts.

The Supreme Court, which sits at The Hague, is principally an appeal (cassation) court, i. e. the court sees that in the judgments a proper interpretation is given of the law and is not concerned with the investigation of facts. The rule is that all judgments given by divisional courts and high courts of justice in highest resort, are subject to an appeal in cassation. As regards judgments in highest resort given by district judges the above rule, at least as far as civil actions are concerned, only operates in a limited degree.

The trial of Service men is in the hands of the Martial Courts; that for the Army holds its sittings at Bois le Duc, that for the Navy at Den Helder. If appeal is possible,

the case goes to the Supreme Military Tribunal at The Hague.

Reference to the Marine Court is made in the Chapter "Shipping". Certain Courts of Appeal are also mentioned in the chapter "Social Provisions". There are also 21 Appeal Courts for the assessment of taxes.

As to the international jurisdiction there are established in the Netherlands: the Permanent Court of International Justice, the Permanent Court of Arbitration, the Academy of International Law, the International Academy of Comparative Law. Seat of all in the Peace Palace at the Hague.



CHAPTER IX.

SOCIAL PROVISIONS.

Workmen's Protection. The legal protection of labour performing persons commenced in the Netherlands in 1874 with the introduction of the Van Houten Act, which abolished child labour for children under 12 years of age. The next Act was the Labour Act of 1889, which maintained the above prohibition, but in addition subjected the labour of children under 16 years of age and that of women of any age to certain regulations and also forbade all Sunday and night labour of women and children. The daily working hours had to remain limited to eleven. This Act did not apply to agriculture and horticulture. In 1911 the age limit of the labour prohibition was raised to 13 years (Talma Act) and the maximum working hours were fixed at 10 hours per day and 58 hours per week. In 1919 (AALBERSE Act) the Labour Act was amended in the sense that the prohibition to work was extended to 14 years, while also a universal regulation of working hours was adopted. These have now been fixed for factories and workshops at a maximum of 8½ hours per day and 48 hours per week, and outside factory, workshops, workroom or office at 10 hours per day and 55 hours per week. As regards work in hotels and café's, stores, chemist's shops, etc., a variation between those two classes of working hours is permitted and must be settled by an arrangement with the authorities. For bakeries, the maximum is 8 hours per day and 48 hours per week. Sunday and Saturday labour after 1 o'clock and on other week-days work between 6 p.m. and 7 a.m. is only exceptionally permitted. The Working Hours

Regulations of 1923 contain provisions regarding this matter, while they also provide that labour should be performed in 2 or 3 shifts. On a request being made to that effect, the above mentioned rules may be departed from by those who receive so-called overtime licenses. The provisions of the Labour Act of 1929 which have so far come into operation, apply to factories and workshops, the labour of young persons and to nursing institutes.

Besides the Labour Act a number of special Acts have been passed in the course of years for the protection of the workman. Thus in 1895 the Safety Act, which applies to factories and workshops, flax-dressing rooms and thrashing-floors, and since 1909 also the electricity generating works. In 1915 the limitation of the Safety Act with respect to industries in which not less than 10 persons are employed, was extended to industries with not less than 5 workmen; in addition the peat-diggings and polder reclamation works were brought within its scope. The Safety Act enables regulations to be made with regard to free air space, ventilation, lighting, prevention of fire, provision of dressing-rooms, dining rooms and lavatories. The Labour Inspection, which controls the due observance of the Act, is also authorized to insist on proper sanitation, temperature, on the exclusion of noxious vapours, gases or dust, and on the prevention of accidents, the proper adjustment of fire-escapes and the prevention of poisoning, infection or other diseases caused by exercising trade. With regard to the latter, more ample opportunities have been given for the restriction of working hours in unhealthy occupations.

On this subject, which is well illustrated in the Safety Museum at Amsterdam, other special measures that were taken have been made laws, including the prohibition

to make matches with white phosphorus (1901) and the passing of the Caisson Act (1905). The Stone-cutters' Act (1913) which prescribes regular medical supervision, provides for the possibility that an unfavourable result of an examination of any workman under 21 years of age may lead to prohibit the employment of such a workman; the working hours are limited to 7½ hours per day for those below 18 years and to 8 hours for those above that age. Since 1923 a number of hygienic measures have been prescribed in respect of workshops. The Stone-cutters' Act was followed in 1916 by the Stevedores Act, which principally regulates the working and rest hours of port labour and prescribes protective measures for the work of stevedores. The maximum working hours are 10 per day and 60 hours per week. In practice however port labourers do not as a rule work more than 48 hours per week. The Mining Regulations (1906) provide rules for mine labour and amongst other things prohibits boys below 16 years and women to work underground; certain kinds of labour performed above ground are also forbidden to persons under 16 years.

Finally we may mention the Labour Disputes Act, passed in 1924, which aims at preventing strikes, and should these occur, to arrive at a peaceful settlement.

The Act sets forth the following means to arrive at an adjustment of labour disputes: intercession of a Government mediator; mediatory boards; courts of arbitration, and commissions of enquiry. For the execution of the Labour Disputes Act the country is divided into 4 districts; in each of which there is a Government mediator.

* * *

Social Insurance. The first law passed on the subject of workmen's insurance was the Accident Insurance Act. It was passed in 1901 and insures workmen in compulsory insurance industries, against the financial consequences of an accident in connection with their employment or as equivalent therewith of any illness incurred in the course thereof, such as lead-poisoning, mercury-poisoning, mine-worm sickness, and others. Compulsory insurance does not apply to agricultural and horticultural industries, navigation on sea, fishing at sea and similar occupations; separate regulations exist with respect to these. The compensation to which an insured person is entitled, consists of medical and surgical treatment (or an allowance in the place thereof) and of a money grant in case of reduced working power. Such payment is temporary and for as long as the person affected is unable to follow his regular occupation, for a maximum period of 42 days after the accident has happened and amounts to 70 % of his daily wages (with a maximum of fls. 8 daily wages); a pension is afterwards allotted to him which in the event of total disability also amounts to 70 % of the daily wages, and in the event of partial disability to a corresponding part thereof. The Act further guaranties compensation to relatives left behind, in the form of funeral expenses, pension to the remaining husband or wife, to the children, to the parents if the deceased was the bread-winner, and in that case also to the grandchildren and parents-in-law. The payments are made by the management of the State Insurance Bank, which is charged with the execution of the insurance provisions and supervises the due observance of the Act. All moneys required to cover these payments are raised in conformity with the premium system. All industries are divided into danger classes according to the risk attached to each industry. In con-

nection therewith the employer pays a certain percentage of the wages by way of premium plus part of the working expenses of the Bank.

The law permits the responsibility to be transferred on certain conditions. The Company undertaking the responsibility is obliged to furnish security. The decisions of the Bank may be appealed against to the Appeal Councils, and in higher resort to the Central Appeal Council, all legally qualified institutions, specially appointed for that purpose.

The second Insurance Act is the *Sea Accident Act* (1915); this entitles any member of the crew of a sea-going vessel registered in the Netherlands, in the event of any accident happening to him, to receive payment on the same basis as applies to the *Accident Insurance Act*. In addition the crew, in the event of a total loss of property, is entitled to an immediate cash payment. Contrary to the *Accident Insurance Act*, this Act is drawn up on a private law basis. The sailor has a claim upon his employer. The employer must guarantee the due fulfilment of the obligations arising for him out of the Act. He can do so by giving substantial security or by joining an insurance company, which will furnish the necessary security on his behalf. The Act applies irrespective of the nationality of the sailor.

In 1919 the *Invalidity Act* was put into operation, regulating the insurance of workmen against the financial consequences of invalidity and old age, in the form of a weekly payment. To reach this object the Act imposes upon workmen the obligation to ensure for themselves such payments, of which the cost is to be met by premiums chargeable to the employers. As a secondary object the Act, by taking measures of a hygienic and medical nature, aims at preventing and arresting the progress of the invalidity as much as possible.

Every workman of 14 years of age and over is obliged to insure himself, provided his wages do not exceed f 2000 annually. Insurance is not obligatory as regards a workman who, at the time of his becoming a workman, has already reached the age of 35 years.

Besides to the workman during life, a pension is allowed to his widow and children at his death. The cost of the insurance is covered by premiums payable by the employer.

The prices for the premiums range from 25 to 30, 40, 50 and 60 cents and are due for each calendar week and payable by affixing stamps to a pension card. The Labour Councils and the State Insurance Bank are responsible for the proper execution of the Invalidity Act. Said Bank allots the pensions and pays the same. The minimum period of being entitled to invalidity and old age pensions is 150 weeks, and for widows and orphans 40 weeks. The deficit of the transition period is paid by the State, which for that purpose pays 21.15 million florins into the Invalidity Fund during 75 years. The age at which a workman becomes entitled to a pension is 65 years.

The Old Age Pension Act (1919) relates to persons with an income below a specified amount, irrespective of whether they are workmen or not. To enable them to draw pensions, it gives the aforesaid persons the opportunity to insure themselves. The cost of such insurance is paid in the form of premiums by the persons insured. All inhabitants of the State are entitled to insure themselves with the State Insurance Bank, for a pension not exceeding 20 florins per week, to commence on their reaching their 65th year or at an earlier age as agreed. The insurance also entitles the person to the payment of f 100 at his or her death, but this payment cannot be claimed unless the person has been insured

for 3 continuous years. The premium depends upon the age at which the insurance was effected. This insurance also carries with it the right to a payment of f 100 at death subject to the aforesaid condition; it is contracted with the State Insurance Bank through the medium of the Labour Council.

The Old Age Pension Act also provides for those who have attained the age of 65 and do not receive any pension from the above mentioned compulsory insurances. They receive f 3 weekly (f 2,50 if unmarried); this pension being paid by the State Insurance Bank and being entirely free of cost.

As the fifth and last insurance law the S i c k n e s s A c t is to be mentioned by which the Workmen's Sickness Insurance (24th June 1929 S. 329) is to be regulated and which came into operation on the 1st day of March 1930. It provides for the compulsory insurance of every workman employed in any undertaking. The sickness benefit amounts to 80 % of such wages as do not exceed 3000 florins per annum, and is payable for not more than 6 months. When this maximum has been reached the benefit in the following will only be paid for a period not exceeding 90 days. The payment of the premium is to be shared equally between employer and employed. Executive organs are the sick-funds of Labour Councils and approved private industrial associations. In addition to the compulsory insurance the possibility is left open for a voluntary insurance. Supplementary to the Sickness Act is the S i c k n e s s F u n d A c t, which aims at the prevention of sickness as much as possible in the interest of both parties. This Act however has not yet reached the operative stage, but will come into force within a limited period of time.

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A third subject of social legislation concerns Unemployment Insurance, Labour Mediation, Transfer of Labour, Procuring work, Advice on choice of trade and Assistance during half-pay periods.

The Unemployment Regulations of 1917 assure assistance in the form of a grant in aid by the State to supplement the contributions of the members of the unemployment funds. As a rule the subsidy percentage is 100. The State and the municipality where the insured person resides pay one half each; on the 1078 municipalities of the Netherlands 913 have agreed to this regulation, which was done voluntarily. The insurance is not obligatory, but the members of a society possessing an unemployment fund participate therein, as soon as they have become a member. The central supervision over unemployment funds is exercised by the Manager of the Government Service of the Unemployment Insurance and Labour Procurement. The number of insured is over 350 000. There is a Government Committee to advise the Minister. Membership of an unemployment fund terminates at the age of 70; admission is not possible above the age of 60 nor below the age of 14. A right to allowance exists after 26 weeks' payment of the contribution; the payment is limited to a maximum of 70 % of the earnings and lasts for not more than 91 days.

Labour Mediation is exercised free of charge and organized into a system with three degrees: local organisations, district exchanges and Central State Labour Exchange. Local organizations have now been established by practically all municipalities under the title of "municipal labour exchange", or "agency for labour mediation". It is the task of the local organ to satisfy in the most practical manner the local demand for labourers and for work of all kinds. In cases of failure, immediate notice of

the demand for labour is given to the district labour exchange, under which it operates.

For mediation in labour the State is divided into 41 districts. All applications for labour, which the district labour exchange cannot comply with, are forwarded by them to the Central State Labour Exchange at The Hague. The larger labour exchanges have opened special work departments such as those at Amsterdam for bakers, office clerks and shop assistants, hotel and café staffs, clothing and building trades, transport work, metal industry as also for unskilled labour. Some labour exchanges have also separate departments for women; in connection wherewith may be mentioned the National Female Labour Bureau at The Hague, which has originated from a private association. The Central State Labour Exchange has a department for commercial travellers and one for the hotel and restaurant business. It is besides the connecting link between the "Dutch Labour Exchange" at Oberhausen and the labour market in this country and between the agency of the Dutch labour exchanges in Paris and that market. These Dutch labour mediation institutions abroad have arisen from the "Association of Dutch Labour Exchanges".

Also to the other European countries and, if opportunity offers, to the Dutch Indies, Surinam and Curaçao the Central State Labour Exchange extends its mediation work. For countries outside Europe the "Dutch Emigration Society" and the "Holland" Emigration Central work in conjunction with the Central State Labour Exchange.

The State has strongly encouraged the growth of the organization of labour exchanges by granting financial assistance. The State for instance allows to the municipalities all telephone and telegraph expenses as well as the cost of the premises and working expenses wholly or partly.

Transfer of labour. In order to enable those who are seeking employment, to accept work offered to them away from their home, the Government offers financial assistance to render such acceptance possible, either by paying travelling expenses, or by defraying the cost of removal when transferring a whole family. In special cases a contribution is given by way of temporary assistance in the event of the family being left behind.

The Government contribution is only given when certain conditions have been complied with, chief of which are that the workman must have been helped by the public labour mediation to obtain the work accepted by him and that the wages to be earned by him do not go above a certain limit.

When accepting work abroad also, viz. in Belgium, France or Germany, the Government may contribute towards the assistance given but as a rule only in respect of such municipalities, as shall have made special regulations for that purpose, approved by the Minister of Labour, Commerce and Industry.

Procuring work. The State strongly encourages and financially assists in the execution of works undertaken by municipal bodies etc. in order to procure or extend the opportunities of obtaining work, whilst also supplying information to municipalities on a large scale. Attempts are also continually being made to cure unemployment for the future by giving financial assistance in the training of unemployed workmen, who have been labouring in threatened industries, to learn a trade, in which there is or presumably will be a scarcity of labour.

Advice on choice of trade. Endeavours are being made as much as possible to create increasing opportunities of obtaining reliable advice in choosing a trade. It is accepted in principle that all over the country

opportunities should be available to young men for being informed, as completely as possible, regarding the questions which arise from the choice of a trade. In this connection we may point to the efforts sympathetically undertaken by the Government to give work to deficient labourers as well as to therapeutic treatment offered free of charge to the labouring classes in two sanatoria.

Finally mention should be made of such cases in which an industry may be involved in a crisis, which only bring about a temporary slackness, so that employers consider it advisable to keep their workmen at their disposal until trade revives. If such employers are willing, during the crisis, to assist their workmen financially whilst waiting for the situation to improve, and make an agreement to help them during the time of their unemployment, the Government and the municipalities may come to the assistance of the employers.



CHAPTER X.

PUBLIC HEALTH.

Much attention is given in the Netherlands to questions of national health both by the authorities and on private initiative.

The most important Act, as regards the quality of articles of food and drink, which deserves mention is the Merchandise Act. It safeguards in the first place the national health and tries moreover to prevent dishonesty in trade. As an outcome of this Act a large number of Orders in Council have been published, containing provisions which have to be observed during the production and subsequent treatment of various articles of consumption to wit: the Milk Ordinance, the Bread Ordinance, the Coffee and Tea Ordinance, the Margarine Ordinance, the Wine ordinance and others.

For the due observance of these ordinances the country is divided into 21 inspectorates, each having at its disposal a laboratory for the testing of articles of food, and should any article prove deficient, the transgressor may be punished by a criminal court.

A separate regulation applies to meat, as laid down in the Meat Inspection Act. Contrary to the Merchandise Act the examination of meat is regulated by the local authorities.

In order to prevent bad meat being imported from abroad all meat is inspected on arrival. In the last few years efforts have been made to extend the provisions applying to meat also to meat products, that is to say to preserved meat, either refrigerated, or prepared meat, also if mixed with other ingredients.

In connection with the food-inspection, the work performed e. g. by the Netherland National Foodstuffs Institute is also of importance.

In addition to articles of food much attention is given to drink water. The authorities have encouraged the installation of drinkwater supplies, amongst other methods by granting financial assistance. There are at present in the Netherlands 140 waterworks. The State Bureau for Drinkwater Supply contributes in a considerable measure to the propagation of a better knowledge in regions where the importance of good drinking water is still little understood. Within a limited period a Government Act will be able to replace the provincial ordinances.

For the purification of sewage-water the Government by establishing the State Institute for the purification of sewage water has created an institution, which acts as adviser both to the Government and to industry.

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On the subject of infant welfare much has already been accomplished in the Netherlands. Where the mortality of infants under one year in 1904—1908 was still 12.63 per 100 registered as born alive, in 1928 this figure had declined to 5.28. An important share in this improvement is attributable to the consultation bureaux for infants, which are established in a number of larger and smaller municipalities. Good results in this connection have also been obtained by the lectures for mothers, where mothers are taught how to treat their babies and also by lectures on dry-nursing. With a view to the mortality amongst infants above one year, which has not declined at the same rate as the mortality at other

periods of life, an Infant Congress was held in May 1929, at which efforts for improvement were seriously considered.

As regards the care of the school-child, we may refer to the appointment of school physicians. By the municipal medical services, which are established in many of the larger towns, the care of school-children has been admirably organised. For smaller towns the institution of district school physicians is being insisted upon. Also measures with regard to treatment outside the school benefit the school-child. Private initiative, assisted by the State, and in many cases also by province and municipality, has accomplished much in this respect. Some associations devote more attention to nursing in health resorts, others to home-nursing. The Central Society for Children's Convalescent- and Holiday Homes is the most important of the numerous societies, which promote nursing-facilities in the country. It owns at the present time about ten convalescent or holiday-homes. Roman Catholic and Protestant Christian Societies also perform useful work in this respect; more in connection with home nursing the Central Committee aims at the sending of children out of towns into the country.

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With regard to housing-schemes, municipalities, in conformity with the Act relating thereto, are bound to enforce requirements, with which new and existing dwellings must comply. Old houses, which are in a state of delapidation may be declared unfit for habitation and be evacuated.

Measures were also taken to stimulate house building. Both the State and the municipal authorities may grant advances to facilitate building. In and after the war period

many houses have been erected by the Authorities themselves. The number thereof during the years 1918—1923 may be estimated at not far short of one hundred thousand. In the last few years however the position has again become normal. Private building again occupies its predominant place. Over 50 000 houses are now built annually, of which over 80 % by private enterprise.

In respect of occupied shanties, caravans and barges, far-reaching legal measures have been taken, as the national health is seriously threatened thereby.

In connection with the rapid extension of the towns the necessity is realised of agreeing upon area plans or district extension plans, which shall not apply to one town only, but to a complex of adjoining towns. Congresses have already been held on this subject.

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The interposition of the Authorities on the subject of temperance legislation began in 1881 with the passing of the Liquor-Bill, which has since been repeatedly amended. The principle, underlying this Act is that the number of opportunities for obtaining alcoholic beverages should be limited. Hence the sale of alcoholic beverages in Holland is subject to license. Only a certain number of licenses may be granted for a certain number of inhabitants. Even the possibility exists that on the expiration of existing licenses no new ones are issued.

In the temperance movement a number of important private organisations of various religious and political denominations are strongly advocating total abstinence. At different places homes for inebriates have been established. Those, who have been treated therein obtain on their return into society assistance from the "Con-

sultation Bureaux for Alcoholism", which are centres for combating alcoholism.

The use of narcotics, such as opium, morphia and others, has fortunately made little progress in the Netherlands. The Opium Act endeavours to prevent these articles from getting into wrong hands, by subjecting the production and sale thereof to a governmental license, which is only obtainable on various restrictive conditions. The Opium Act, moreover, aims more especially at co-operating in the measures which have been adopted by a great many countries jointly, with a view to checking this evil internationally.

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The Act to prevent the spreading of infectious diseases from ships arriving from oversea, subjects a ship to a special supervision, in the event of its coming from a foreign port, which the Dutch Government has declared to be infected, or in the event of a serious disease having appeared on board of the ship itself during the voyage. In such cases various preventative measures are applied on arrival at the Dutch port. Such measures are in conformity with the International Sanitary Convention, concluded in Paris in 1926, even although this convention has not yet been ratified by the Netherlands. Another Act contains provisions with a similar object against those, attempting to enter or traverse the Netherlands overland.

The Act relating to infectious diseases indicates which diseases are to be regarded as such, which authorities are charged with the taking of preventive measures and the nature of such measures. A special place therein has been given to the danger from smallpox. Until a short time ago children were not allowed to

attend any school unless they had been vaccinated against smallpox. In connection with the appearance of post vaccinal encephalitis — a serious disease which may occur after vaccination — obligatory vaccination has been temporarily suspended.

For the treatment of the sick, the Netherlands, with a population of about 7 million inhabitants, dispose of an adequate number of nursing-homes and hospitals. Statistics show that there were 261 in 1926 with 24532 beds. The size of these institutions varies: 56 infirmaries had over 100 beds, 66 had 50—100 beds and 139 less than 50 beds.

Of diseases to be specially mentioned, we may refer to tuberculosis and venereal diseases, which both fall outside the Infectious Diseases Act. The State gives a good example in the fight against tuberculosis by allocating 1.3 million guilders annually for this purpose. In the country \pm 750 local associations are at work under which a district nurse carries out the daily labour of house visiting in connection with the tuberculosis campaign. The Dutch Central Society for the prevention of tuberculosis pays great attention to the training of these visiting nurses. The expenses of the local associations are chiefly met by a subsidy from the State, the province and the municipality. For some years past more attention has been devoted to the question of the "after care", in other words to the question how convalescent tuberculous patients may again be placed in a suitable social position. A few sanatoria have therefore extended their opportunities for physical exercise and have opened a department for physical therapeutics.

Special attention is also paid by the Dutch Government to the fight against venereal diseases. A financial arrangement has been made by the State with the large harbour towns of Amsterdam and Rotterdam,

which will enable also the Netherlands to accede to the Brussels Agreement of 1924, which guarantees the free treatment of patients of all nationalities.

The Netherland Association for the prevention of sexual diseases maintains consultation bureaux to ensure that persons affected shall as soon as possible place themselves under medical treatment.

In the fight against other diseases also, private initiative has not been idle, as for instance the Netherland Cancer Institute at Amsterdam, where researches are carried on into the causes of this much dreaded disease. Sufferers from epilepsy are also afforded the treatment they need by private enterprise. In all these cases the State gives proof of its sympathy by larger or smaller subsidies.

The establishment of funds for medical assistance has been strongly developed in the Netherlands. Presumably within a limited period this matter will be regulated by law. The Sick Relief Act passed in 1929 creates an insurance under which every workman is entitled to 80 % of his weekly wages during sickness.

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In the Netherlands the art of medicine may only be practised by those who have been declared competent thereto by law. Such authority is given chiefly to those who have obtained the medical certificate. They form the medical profession.

Those also who desire to practise the pharmaceutical art must have passed certain academical examinations. In the smaller places the business of apothecary is not sufficiently remunerative. Hence the possibility being suggested of the doctor also keeping a pharmacy. The Anti-quackery Society performs useful work by protecting the public at large against deception.

Midwives may only render obstetrical assistance in cases of normal birth. As soon as complications set in, medical help must be summoned. The number of midwives for the whole of the Netherlands is at present from about 800 to 900, or 1 for every 7 to 8000 inhabitants. Their training receives special care. A State Training School for midwives at Amsterdam, one at Rotterdam and a private training school at Heerlen have been founded for this purpose.

Male and female nurses do not enjoy the monopoly, allowed to the medical profession, apothecaries and midwives. The law has confined itself to protecting the denomination male or female sick nurse. The training of nurses takes place in hospitals, assigned by the Government for that purpose. Those who have obtained the general certificate, may proceed to specialize for a certain branch of nursing. A training for qualification as district nurse is in preparation. In this connection mention may be made of the magnificent work done by such societies as "The White Cross", "The Green Cross" and "The White Yellow Cross". These three societies are working specially in the sphere of district nursing and are continually increasing their activities in the domain of social hygiene and have become indispensable co-workers in the national health campaign.

Attention should also be directed towards the courses held at Amsterdam for the education of hygienists.

With a view to keeping up the high standard of the medical profession, a medical tribunal has been instituted.

Doctors, dentists and midwives who neglect their duty, may be called to account before a board which has power to suspend or cancel the authority to act as doctor, dentist or midwife.

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The organisation of the official control with regard to national health, is in the hands of the State National Health Inspectorate, which often lends its cooperation in the perfection of plans for the promotion of national health. The Health Act, passed in 1919, provides in the first place for the institution of a Health Council, composed of a number of private and professional experts on the subject of social hygiene and consists of about 80 persons. The duty of this Council is to advise the Government. The Government very frequently avails itself thereof. The Council possesses a library which has obtained international fame.

Besides to the Health Council the Act refers to the State investigation of National Health. At present there are chief inspectors for the medical supervision; the hygiene of soil, water and air; the housing of the people; child hygiene, the prevention of tuberculosis and venereal diseases and superintendence of meat inspection.

The Director-General of National Health is the central authority of the State control. He is accommodated in the Department of Labour, Trade and Industry at The Hague.

The Health Committees rely on the active cooperation of the public. These committees are elected from the public. They give advice to the municipal authorities in respect of all subjects concerned with national health.

Important State institutions for the promotion of national health are also the State Serological Institute and the Central National Health Laboratory. The first named is concerned with the preparation of sera and vaccines. Both the home production and the imports from abroad are subjected by the legislator to State

control. The Central National Health Laboratory examines amongst others, articles of food and drinking-water.

In this way the Authorities and the private citizens of the Netherlands cooperate in safeguarding the health of the population. The State contributes annually a sum of \pm fifteen million guilders towards the promotion of national health and in addition the provinces and municipalities are granting considerable amounts as subsidies.



CHAPTER XI.

THE SCIENCES.

The cultivation of the sciences in the Netherlands, considering the size of the country and its population, has reached a great height. There is no need for any self glorification, as the acknowledgement of the outside world and the institution of the Nobel prizes enable the scientific wealth of a country to be pretty accurately gauged. That no less than four Nobel prizes have been awarded to Dutch scientists, whose lifework is in the domain of physics, is at once indicative of the direction in which such pre-eminence is to be found. Professors KAMERLINGH ONNES, VAN DER WAALS, LORENTZ and ZEEMAN have given to the study of physical science in the Netherlands a significance which extends far beyond the frontiers. In LORENTZ we possessed the originator, honoured in every land, of the theory of the electrons; in ZEEMAN we have the no less renowned discoverer of the ZEEMAN effect, called after him; in the name of KAMERLINGH ONNES survives the great importance of the liquefaction of helium; Professor VAN DER WAALS may be considered to have paved the way to obtain this result. That three of the four professors of Leiden reached the summit of their fame, has to this day given to the physical faculty of Leiden an international reputation, so that scientists from various countries are repeatedly its guests. In Professor KEESOM's work we see a continuation of the labours of Prof KAMERLINGH ONNES. Although of late years he has ceased to lecture in the Netherlands, we may not omit to mention here Professor VAN 'T HOFF, whose influence on the study of general chemistry has been very widespread, and to whom also the Nobel prize was awarded;

further Prof. BAKHUIS ROOZEBOOM of former days and Prof. ERNST COHEN of the present time.

In still another direction has the science of physics procured for the Netherlands world-wide renown; we think in this connection of HUGO DE VRIES, the man of the mutation theory, which many countries tried to grasp in vain. Together with HUBREGHT he founded a basis for the modern study of biological science in the Netherlands. In this connection we may refer to the bill recently passed aiming at the regulation of applied physical science research to render such research serviceable to the general interest, amongst other means, by promoting co-operation.

In the domain of *a s t r o n o m y*, the Netherlands owes its reputation chiefly to Professor KAPTEYN, whose studies on the subject of star statistics and such like, are most suggestive, and to Prof. NIJLAND, whose instruction has made the subject of astronomy familiar to thousands. We may further mention the Royal Meteorological Institute at De Bilt, which under the able guidance of Professor VAN EVERDINGEN, occupies a much valued place both scientifically and for the practical application of astronomy highly appreciated by shipping and agricultural circles, and whose weather reports enjoy great confidence. The Leiden observatory has an excellent name for beyond the confines of this country.

A well known name in the school of *mineralogy* is that of the early deceased Professor SCHROEDER VAN DER KOLK, the inventor of an ingenious method of identifying minerals. The Mineralogical Institute is established at Delft.

M e d i c a l S c i e n c e has reached a high plane in the Netherlands partly on account of the historical fame of a Boerhave, a Leeuwenhoek, a Swammerdam, a Donders and others, partly through the great ability of its servants of recent years, of whom we have only to mention

the names of PEKELHARING, HAMBURGER, TALMA, PEL TREUB, STRAUB, KOUWER, WENCKEBACH, ROTGANS, KORTEWEG, ENTHOVEN, EIJKMAN, (the founder of the theoretics of vitamine and the holder of a Nobelprize like Prof. ENTHOVEN), ZWAARDEMAKER, WINKLER and BOUMAN. In just proportion to their skill is the excellent equipment of the clinics and hospitals, mostly connected with the Universities of Utrecht, Leiden, Groningen and Amsterdam, but also maintained separately, like the Psychiatrial Neurological Clinic at Amsterdam, the Homeopathic Hospital at Utrecht and similar institutions. The Central Institute for Brain research at Amsterdam is under the management of Prof. Dr. ARRIENS KAPPERS, of international renown.

If we now turn to those sciences whose objects are the products of the human mind, such as philosophy, theology, literature, the study of the law, pedagogy and others, we are again struck by the very strong development in this domain, considering the modest dimensions of this country. The department of philosophy is not the strongest of the foregoing; it principally knows able imitators: BOLLAND, who has tried to re-introduce HEGEL to philosophic minds; MEYER who revived SPINOZA, BIERENS DE HAAN, who re-introduced HEGEL in his own way; LEVY who revived KANT; DE HARTOG, the interpreter of SCHOPENHAUER, RITTER of LEIBNITZ. The Groningen Professor HEYMANS obtained great celebrity and influence by his experimental psychological researches. In this connection we would also mention the International School of Philosophy at Amersfoort.

Neither does the Netherlands know any original thinkers, but only able expositors on the subject of Theological Science: men like SCHOLTEN and KUENEN, VALTON and CHANTEPIE DE LA SAUSSAYE and OBBINK, KUYPER and BAVINCK, have by their

labours tried to determine in religion the influence of modern, ethical and confessional principles respectively.

The domain of *P e d a g o g y* may point to pioneers of acknowledged ability; in the names of GUNNING, LIGTHART, CASIMIR, BAVINCK and others, the memory of admirable leaders has been preserved, men whose principles, put into practice, have enriched public instruction in various directions.

From this domain it is only a step to that of the *S t u d y o f L a n g u a g e s*; here the Dutch are very prominent, we need only refer to the Great Dictionary of the Dutch language, which after the period of DE VRIES and TE WINKEL, brought forward the name of Professor KLUYVER, with, as newest branch, the simplified spelling, associated with the name of KOLLEWIJN, and declared partly acceptable by a Government Commission. Names of well known linguists are also: SALVERDA DE GRAVE, VALKHOFF, WOLTJER.

Looked at from a broader point of view the study of the Dutch language is closely related to the Great Dutch or Dietsch movement, which also comprises Flemish and South African, and whose pioneers are given equal treatment with Hollanders not only in the Society of Dutch Literature, but also in literary magazines.

Attention may further be drawn to one of the strongest domains of science, in this country viz. that of *H i s t o r y*.

The names of FRUIN, BRUGMANS and KERNKAMP, KALFF, FEITH, BLOK, MULLER, COLENBRANDER, HUIZENGA, HEERES, JOHANNA NABER suggest to us a treasure house of reading material, which is acknowledged to be a series of indispensable guides on historical subjects, in addition to which also to the archives and libraries, so excellently organised in the Netherlands, should be mentioned.

We would further call attention here to the "*Hol-*

landsche Maatschappij der Wetenschappen" at Haarlem and the Netherland Institute for historical research at Rome.

After the Royal Library at The Hague the best known institutions of that kind are the University Libraries; then there should be mentioned the libraries of the Peace Palace in The Hague and that of the Teyler's Foundation at Haarlem, the Royal Academy of Sciences at Amsterdam, provincial libraries, the economic library of the Trade Division of the Department of Labour, Commerce and Industry, the library of the Central Statistical Bureau, all splendidly equipped arsenals for students in every field of knowledge. A number of special libraries supplement these studies; we think in this connection of the libraries of the various Ministeries, of the magnificent musical library of Dr. SCHEURLEER at The Hague, of the library of the Book-trade at Amsterdam, of the library of the Health Council at The Hague and other similar ones. The institution of Public Reading-Rooms has in a short time grown into a extensive organization, which has about 90 reading-rooms under its management. We may also refer here to the flourishing and popular institution of University Extension.

With the General Government Records Office at The Hague, under the direction of Prof. FRUIN, serving as a central archives repository, ten State Records Offices in the provinces as depots, and many municipal archives, archival science has strongly developed since 1902 and has now been placed under Government control by a special law. Reference may also be made here to the issue of State Historical Publications, the Heraldic Records and the Historical War Records.

A short review of the cultivation of the Juridical and Economic Sciences will conclude this article.

In the last half of the past century it was at first more especially national jurisdiction, which roused the interest of Dutch jurists. Men like KIST, LAND and OPZOOMER devoted themselves to the study of Civil Law, BUYS to constitutional law, PIERSON to economics. They have found worthy successors in OPPENHEIM (Municipal law), MEYERS (Civil law), KRABBE, the enthusiastic defender of the doctrine of the "Sovereignty of the Law", VERRIJN STUART (Economics), MOLENGRAAFF (Commercial law), SIMONS (Penal law) and others. On the subject of Colonial law quite a special place is occupied by VAN VOLLENHOVEN, as eminent judge and champion of the individual rights of the native population of the Dutch Indies, whilst on the analogous subject of Islam, SNOUCK HURGRONJE has earned a world-wide reputation.

Very soon a tendency manifested itself to take up the study of international law. In 1888 the Groningen Professor of Penal law, G. A. VAN HAMEL, together with VON LISZT and PRINS, founded the "Commission Penitenciaire Internationale". The greatest fame in this respect however was earned by Dr. T. M. C. ASSER, to whom was awarded the Nobel prize and whose merits, more especially as regards international private law, hardly need to be called attention to here. Through his labours The Hague gradually became the centre of the science of international private law, and several conferences were held there on the subject, which gave rise to a number of international conventions. After ASSER's death the name of the Netherlands in the domain of international private law has been upheld by men like JOSEPHUS JITTA, KOSTERS and SUYLING.

The study of the law of nations, which in the last few centuries had somewhat receded into the background in the land of GROTIUS, experienced a powerful revival, when the Peace Conferences met in this country and the

International Arbitration Court at The Hague was established in the Peace Palace, the gift of the American millionaire ANDREW CARNEGIE. The names of the LOUTER, VAN EYSINGA, VAN VOLLENHOVEN and STRUYKEN have a universally familiar sound in this respect. From 1910 dates the formation of the "Netherland International Law Association", a sub-division of the "International Law Association"; the meeting of the Association at The Hague in 1921 led amongst other matters to the adoption of the important "The Hague Rules". The establishment of the "International Intermediary Institute" in 1918 was a gratifying proof of the interest which also in trade circles is taken in the study of the Law of Nations.

The opening of the Permanent Court of International Justice, established at The Hague, was greeted in this country with the greatest sympathy, and a great number of Dutch devote their energies to promoting the success of the League of Nations. In the first place mention may be made of the Honorable Dr. H. A. VAN KARNEBEEK, the late Minister of Foreign Affairs, who in 1921 was appointed chairman of the Meeting of the League of Nations, also Dr. B. C. J. LODER, chosen to preside over the Permanent Court of International Justice and Prof. Dr. J. A. VAN HAMEL, formerly Head of the Juridical Division of the League of Nations.

Many Dutch economists also take an increasing interest in international affairs likewise in connection with the work of the League of Nations; it will be sufficient to mention here VISSERING, TREUB, BRUINS and the Amsterdam banker TER MEULEN, whose name as the originator of the plan adopted by the League of Nations to grant credits to countries in want of capital ("Ter Meulen Fund") has gained great celebrity.

In conclusion reference should be made to the Brussels Convention, closed in 1927, the object of which was

the intellectual reconciliation between the Netherlands and Belgium. There are 216 Dutch unions abroad. The "Algemeen Nederlandsch Verbond" includes the "Dietsche Stam" divided into the groups: Holland, Belgium, the Netherlands East Indies, Surinam, the Dutch Antilles, South Africa and the United States. Besides those there are the Unions Holland—Italy, Holland—Portugal, Holland—Spain, Holland—Austria, Holland—Polen, Holland—Germany, Holland—Belgium, Holland—New Russia. The Union "Nederland in den Vreemde" has sections in Japan, Italy, Switzerland, Scandinavia and Germany. For the general propaganda of the Netherlands abroad the "Algemeene Nederlandsche Vereeniging voor Vreemdelingenverkeer" at The Hague exercises the leading functions.



CHAPTER XII.

ART AND LITERATURE.

It would be unfair to say that modern art life in the Netherlands thrives only upon historical fame, for, although the Dutch are — and justly so — proud of their great painters in the 17th century, there are at present a number of quite successful modern artists in Holland. Thanks to the flourishing condition of Dutch art in earlier times, a rich history of art still continues to thrive in the midst of modern conditions and the Government by various means endeavour to preserve the ancient monuments of painting, sculpture and architecture, to restore them and to prevent their decay. Such efforts on the part of the Government have found an echo in the heart of the nation; societies such as “Heemschut”, “Hendrik de Keyzer”, the Netherlands Open Air Museum, the Netherlands Antiquarian Association, and others are the evidence thereof. And as regards the study of art, capable and inspiring guidance is being given therein by the Professors at the Universities, at the Technical High School, by the State Academy of Plastic Arts and by the Government Bureau for the preservation of ancient monuments.

This train of thought leads us instinctively to the museums, foremost amongst these being the Government Museum, the “Rijksmuseum”, at Amsterdam, the object of many thousands of tourists. Within the same building, itself a significant work of art, erected by the late architect D. P. J. M. CUYPERS, four institutions have been housed together: The State Museum of Painting, which amongst others includes the DRUCKER collection, the State Museum of Sculpture and Industrial Art, the Dutch Historical Museum which is still incomplete

and the State Prints Cabinet. Other Art treasures of the State are chiefly housed in the Royal Picture Gallery (Mauritshuis), the State Museum H. W. Mesdag (principally French and Dutch impressionists of the 19th century) and the Royal Numismatical Cabinet, all the three at The Hague; the State Antiquarian Museum at Leiden with prehistoric, Egyptian, Grecian, Roman and Early Dutch sections; the State Ethnographical Museum in that city, containing amongst others important specimens of Eastern Art, the State Museum Huis Lambert van Meerten at Delft (chiefly ceramic art), the State Museum van Bilderbeek—Lamaison at Dordrecht (paintings) and the State Museum G. M. Kam at Nijmegen (Roman and Early Dutch objects), whilst thanks to the liberality of the family VAN HEEK a State Museum of Twenthe has been opened at Enschede. Many towns, provinces and special institutions also make their treasures of art accessible to the public in museums; we may mention in this respect the Municipal Galleries, the Dutch Historical Museum of Navigation and the Rembrandt House at Amsterdam, the Dutch Open Air Museum at Arnhem chiefly devoted to Netherland folklore, the Provincial Museum at Assen, the Municipal Galleries at Delft, Edam, The Hague, the Princess Court at Leeuwarden (Eastern Art), the galleries of Egyptian and Grecian industrial art, for reproductions of sculpture and of industrial art of more recent date, as well as the Orange-Nassau Museum at The Hague, at Haarlem the Museum of Teyler's Foundation and the Frans Hals Museum with the celebrated Guards pictures by this master, the galleries of the Provincial Societies at 's Hertogenbosch, Maastricht, Middelburg and Zwolle, the West Frisian Museum at Hoorn, the Dutch Army Museum at the castle "De Doorwerth" near Arnhem, at Rotterdam the Boymans Gallery, the Museum of Antiquities and the Geographical

and Ethnological Museum and Maritime Museum Prince Hendrik and the Museum at Zutphen. Whilst the State Galleries refrain from purchasing works by living artists, modern art sometimes occupies an important place in these local museums.

In this connection we should not omit to mention the magnificent work performed by the Rembrandt Society, which, with the co-operation of curators of museums, has already succeeded in saving or in acquiring many works of art for this country.

Comparatively scarce are buildings of the Roman period, preserved in our time, such as are still found in Limburg (Maastricht, Rolduc, Susteren, Roermond) and in the town of Utrecht; of the Gothic period a variation of the style then in vogue is found in this country. It is true, that a few large churches, such as the Dom at Utrecht and St. Jan's church at 's Hertogenbosch, were built in the North-French Gothic style, that in the West of the country an important group — the churches at Breda, Goes, Dordrecht, Rotterdam, Delft, Haarlem and Alkmaar — date from the South Netherland (Brabant) Gothic period, whilst in the Eastern part churches such as those at Arnhem, Zutphen, Kampen and Zwolle show the Rhenish-Westphalian style; but side by side with those since the end of the fifteenth century, the country has developed a Gothic style of its own, which in churches such as are found at Leiden, The Hague, Gouda and Amsterdam, as well as in many smaller places, especially in South Holland village churches, has assumed a form of architecture peculiarly "Dutch" in character.

In stately fashion do the monumental Church steeples of Amersfoort, Groningen, Rhenen and Utrecht rise from the level country around, whilst works like the Palace of the Counts of Holland at The Hague and the townhalls of Gouda, Haarlem, Kampen, Middelburg and Veere,

denote the significance of the civil architecture of that period.

At the time of the Renaissance, when side by side with the "Old Dutch" a more international tendency manifested itself, church architecture was entirely neglected; but there arose the townhalls of Nijmegen, The Hague, Leiden, Bolsward, Delft, Amsterdam (now a Royal Palace), the weig-houses of Alkmaar, Enkhuizen, Gouda, Haarlem and Leiden whilst the Amsterdam canals assumed the appearance, which earned for this city the title of the "Venice of the North". Names such as LIEVEN DE KEY, HENDRIK DE KEYZER, PHILIPS VINGBOOMS, JACOB VAN CAMPEN and PIETER POST suggest themselves in this connection. After a period of absolute decay in the 19th century, the brilliant architect Dr. P. J. H. CUYPERS, associating himself chiefly with the pure gothic tradition, roused architecture to new life, after which, especially under the influence of BERLAGE, whose epoch-making work may be seen in the Merchants' Exchange at Amsterdam, DE BAZEL and KROMHOUT, it reached the very flourishing period which we are now witnessing. Architects such as DE KLERK and OUD and of late years' fame also DUDOK, KRAMER, KROP-HOLLER, VAN DER MEIJ, STAAL, WILS, WIJDEVELD etc. have again raised our architectural achievements to a height which makes them a centre of attraction and interest for many both at home and abroad. Special mention should be made in this connection of the very nobly planned city extensions of Amsterdam, The Hague and Rotterdam.

It is superfluous to cite the names of men, known the world over, who have been the founders of the Dutch school of painting, which in a certain sense has inspired such great masters of the nineteenth century as JOSEF ISRAELS and the brothers MARIS. Unnecessary

also to point out the importance of a man like VINCENT VAN GOGH, to the modern art of the whole of Europe. Well known names of Dutch painters of the beginning of the twentieth century are BREITNER, HAVERMAN, JAN VETH, VERSTER, TOOROP and the early deceased MANKES, whilst of the now living generation special mention ought to be made of VAN KONIJNENBURG, BAUER, ISAAC ISRAELS and JAN SLUYTERS. Already many of their works and of those our graphic artists, such as VAN HOYTEMA, VELDHEER, DUPONT and NIEUWENKAMP have been given worthy places in galleries both at home and abroad. The rather scarce art of caricature, as far as the Netherlands is concerned, is represented by BRAAKENSIEK, RAEMAKERS, TON VAN TAST (ANTON VAN DER VALK), JORDAAN, CORNELIS VETH and others.

After a long period of inactivity in this field, the Netherlands is witnessing a remarkable revival of the Sculptural Art, inaugurated by artist such as CHARLES VAN WIJK and TOON DUPUIS. Especially to our architects and foremost amongst them to BERLAGE, who placed orders for plastic work so intimately connected with architecture, do we owe the origin of the art of "architectural sculpture" practised by such eminent artists as MENDES DA COSTA, ZIJL, VAN DEN EIJNDE, HILDO KROP, RAEDECKER, VAN REIJN, who have again raised our national sculpture to a high plane.

The "practical" arts of picture and glass-painting also owe their rise to a great extent to modern architects, who caused many buildings to be decorated with mural paintings and painted glass windows; in this line the names of Prof. DER KINDEREN, Prof. ROLAND HOLST, THORN PRIKKER, TOOROP, VAN KONIJNENBURG and NICOLAS should be specially mentioned.

Other applied arts have participated in this general revival towards the beginning of the present

century, and here also architects like BERLAGE and DE BAZEL acted as pioneers with most fruitful results. Many of the industrious artists of to day, like LAUWERIKS, LEBEAU, LION CACHET, do not confine themselves to a single technical branch. We may also refer e. g. to VAN DEN BOSCH, PENAAAT, WOUDA (furnishing art); COLENBRANDER, BROUWER, LANOoy, NIENHUIS (ceramics); BROM (church decorative art); EISENLOEFFEL and ZWOLLO (metal work); WIENECKE, KROP, BOLLE and VAN DER HOEF (numismatics); SMITS, DE ROOS, VAN ROYEN, VAN KRIMPEN, STOLS, NYPELS, WYDEVELD (book-binding and typography), the late DUCO CROP, Mrs. DER KINDEREN, BESIER, MARGARETHA VERWEY, ELISABETH SIEWERTSZ VAN REESEMA, NIEUWENHUIS, GIDDING (textile art); DE LORM, COPIER (glassware). Alzo in advertising, this flourishing revival of the applied arts has led to remarkable results.

As regards the study of Art History our country occupies an honourable place through the labours of men like Dr. A. BREDIUS, F. SCHMIDT DEGENER, Dr. C. HOFSTEDE DE GROOT, Dr. JAN KALF, Prof. Dr. W. MARTIN and Prof. Dr. W. VOGELSANG, while as art critics there may be also mentioned ALB. PLASSCHAERT, JUST HAVELAAR and BREMMER.

Only in bird's-eye view will it be possible to deal with the subject of Literature within the limits of this article. The association of literary men and women in this country is the "Maatschappij voor Nederlandsche Letterkunde". Generally speaking, the literature of the last decades reflects the national character. It is solid, not superficial, ponderous at times, seldom humorous, and as regards its tendency: since 1880 a decided and striving for psychological analysis and thoughtful interpretation has been manifested. A large army of literati has sprung up after the eighties, when a radical shifting

of the literary soil seemed to herald a complete break with past traditions and pioneers like WILLEM KLOOS, ALBERT VERWEY, LODEWIJK VAN DEYSEL, HERMAN GORTER and others proclaimed the dawn of a new era. Gradually this movement so strongly inaugurated has somewhat abated, but it has nevertheless exercised a great influence on the literary productions of the Netherlands. Amongst the best known authors and authoresses of late years may be counted LODEWIJK VAN DEYSEL, LOUIS COUPERUS, MARCELLUS EMANTS, INA BOUDIER—BAKKER, HENRI BOREL, C. J. A. VAN BRUGGEN, CARRY VAN BRUGGEN, IS. QUERIDO, JOHAN DE MEESTER, TOP NAEFF, HERMAN ROBBERS, Dr. BAEKE, FRANS ERENS, JO VAN AMMERS—KÜLLER, FRANS COENEN, CAREL SCHARTEN and MARGOT SCHARTEN-ANTINK, FREDERIK VAN EEDEN, HERMAN HEYERMANS, JAC. VAN LOOY, ALIE SMEDING, A. M. DE JONG, Q. A. DE RIDDER, G. SCHRIJVER, JOHANNA BREEVOORT, J. L. F. DE LIEFDE. Amongst Dutch poets there were or still are of the first rank: ADAMA VAN SCHELTEMA, BASTIAANSE, BOUTENS, HERMAN GORTER, WILLEM KLOOS, LEOPOLD, HENR. ROLAND HOLST, A. ROLAND HOLST, NIJHOFF, HELENE SWARTH, VERWEY, FRANS MIJNSSSEN, GEERTEN GOSSAERT, WILLEM DE MERODE, NELLIE VAN KOL.

The above period has also produced dramatists, we think of Mrs. SIMONS—MEES, MARC. EMANTS, FRED. VAN EEDEN, FRANS MIJNSSSEN and for a wider circle:

The above mentioned period has also produced dramatists; we think in this connection of Mrs. SIMONS—MEES, MARC. EMANTS, FRED. VAN EEDEN, FRANS MIJNSSSEN and for a wider circle: Jhr. VAN RIEMSDIJK, JAN FABRICIUS, WILLEM SCHURMANN, Dr. VAN ROSSEM, HENRI DEKKING.

We may also refer here to the work of Dr. WILLEM ROYAARDS, who died in 1929, and who as regards the

theatrical production of Dutch, English and French classics as well as of modern plays, has been a leading personality. By his side we place that great master of Dutch acting of a now vanishing period: LOUIS BOUWMEESTER, and we may also mention: EDUARD VERKADE, LOUIS DE VRIES, Mrs. MANN—BOUWMEESTER, COR VAN DER LUGT MELSERT, RIKA HOPPER, JAN MUSCH, ALBERT VAN DALSUM, ANNA VAN EES, ELSE MAUHS, COR RUYS, TILLY LUS, and as a talented reciter: ALBERT VOGEL. The open air theatre has gained in popularity during the last few years. Amongst others they are found at Valkenburg, Arnhem, Oosterwijk, Wassenaar, etc.

Dutch Opera is repeatedly experiencing the difficulty of giving well arranged and high class dramatic performances in a country which appreciates this form of art only to a moderate extent and after the departure of French Opera is constantly witnessing the return of the Italian. Much interest is also shown in German Opera; and in connection therewith mention may be made of the work of the Dutch Wagner Society at Amsterdam and the occasional model performances by German operatic artists at The Hague.

On the other hand, Dutch musical art stands on a very high level and shares to the full in the appreciation of the people and the authorities. Excellent orchestras, of which that of Amsterdam with its world renowned conductor Dr. WILLEM MENGELBERG may be considered the crown, are found in the towns of The Hague (under the leadership Dr. PETER VAN ANROOY), Utrecht (EVERT CORNELIS), Arnhem (MARTIN SPANJAARD), Groningen (KOR KUIJLER), Leeuwarden (WILLEM ZONDERLAND) and Haarlem. For several years past these orchestras have been subsidized by the State, the Province and the Municipality. At the State University of Utrecht a special

chair for the theory and the history of music was established in 1929.

Vocal societies are almost innumerable in this country. Especially the "Society for the promotion of musical Art" founded in 1829, has been a pioneer in this respect and has rendered astonishing services in later years. The performances of this Society's branches have brought a valuable collection of classical and modern oratoria, masses, musical dramatic and other works within the reach of thousands. By its side arose large Oratorio Societies, which have likewise contributed to the enlargement of the accompanying orchestras and with which are associated the names of G. T. TIERIE, JOHAN SCHOONDERBEEK, BERNARD DIAMANT and HUBERT CUYPERS. Many hundreds of choirs are united in the "Ned. Zangersverbond" and the "Bond van Chr. Zangverenigingen".

Special appreciation should be shown to the small vocal societies, which by a careful selection of repertoire and performers, have revived a fine selection of old music; we mention here Averkamp's a capelle choir, Spoel's vocal society, the Madrigal choir, the Dutch Bach society and similar ones.

Particularly rich is the country of SWEELINCK in magnificent church organs and in consequence thereof in church recitals. Rotterdam, The Hague, Amsterdam, Haarlem, Arnhem, Utrecht, Zwolle, Bois le Duc, Leeuwarden, Alkmaar, Leiden, in short nearly every town of importance has its weekly organ recital, given by organists of repute, amongst whom are: J. A. DE ZWAAN, WOLF, BESSELAAR, HASSELAAR, JOHAN WAGENAAR, GEORGE ROBERT, EVERT CORNELIS, JAN ZWART, LEO MENS and others.

With regard to musical education, schools for music are principally established in the larger towns. Foremost amongst these is the Royal Conservatoire at

The Hague (established as early as 1827), "The Conser vatoire of the Musical Society" at Amsterdam, the school for music of the "Musical Society" at Rotterdam; also many private well-established schools for music are found all over the country.

To provide this complex of reproducing and studying artists with material, Dutch composers only offer a small contribution. Yet during the last 25 years there has been a notable revival and although we are very far from being able to talk of a Dutch school of c o m p o s e r s, numerous musical compositions have already been heard in the concert hall which bear the stamp of their Dutch origin and have been appreciated also beyond the frontier. The names of BERNARD ZWEERS, PETER VAN ANROOY, JOHAN WAGENAAR, DIRK SCHÄFER, JULIUS RÖNTGEN, WILLEM ANDRIESSEN and CORNELIS DOPPER are associated with compositions of genuine Dutch calibre. A less marked national stamp bears the work of DIEPENBROCK, VON BRUCKEN FOCK, JAN VAN GILSE and others. The modern school is also represented in Holland by talented exponents, amongst whom are VAN GOUDOEVER, PIJPER, ENTHOVEN, DRESDEN, ZAGWYN, VOORMOLEN, all young composers, whose work is more or less influenced by French impressionists.

The reproductive art of music is well represented in the Netherlands, which may boast of a number of exceedingly talented pianists: JULIUS RÖNTGEN, DIRK SCHÄFER, WILLEM ANDRIESSEN, EVERT CORNELIS and others. Male and female singers of repute are: Mrs. NOORDEWIER REDDINGIUS, MIA PELTENBURG, THOM DENIJS, JAC. URLUS, TILLY KOENEN, JULIA CULP, ANNA STRONCK—KAPPEL, Lady REPELAAR VAN DRIEL, HENDR. C. VAN OORT, JAC. VAN KEMPEN, MAX KLOOS, JAC. CARO, LOUIS VAN TULDER, RICH. VAN HELVOIRT PEL, WILLEM RAVELLI, MARTINE D'HONT, SUZE LUGER,

JO VINCENT, etc. As poets and singers of international fame we mention here SPEENHOFF, the too early departed JEAN LOUIS PISUISSE, CLINGE DOORENBOS and JAN VAN RIEMSDIJK.

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A short review of Government assistance in the sphere of Art and Literature will conclude this chapter. A pioneer in this field was Jonkheer VICTOR DE STUERS; the section of "Arts and Science", followed later by a separate Arts and Science section in the Department of Public Instruction, Arts and Science, was the outcome of his energetic efforts to obtain official recognition for these important domains. The "Arts and Science" section of the above Department, under the active directorship, first of Mr. DUPARC and now of Mr. P. VISSER, has gradually got into closer contact with science and art; a sum of three and a half million florins appearing in the budget for science and art in 1931 shows the extent to which this subsidy has grown.

Not only is a large sum devoted to the restoration of monumental buildings, churches and similar objects, but Public Reading Rooms and Libraries are likewise enjoying Government assistance, while the publication of historical art volumes and magazines is being encouraged. In addition to the State museums various municipal and private galleries are in receipt of financial grants and interests such as the Dutch Archeological Research; church bells (carillon), folk's songs, economic studies, musical art studies etc. are also subsidized. On musical art alone a sum of 300 000 florins is annually spent; stipends are given to musicians and authors in need of financial support and contributions are paid towards the printing of Dutch compositions.

On the whole it may be asserted that in the Netherlands no officially recognized institution of art or science ever appeals in vain to the exchequer, if such an appeal is justified by the object in view (and the circumstances of the moment).

The copyrights of all (compositions and reproduction) in the Netherlands are settled by the Act for the Protection of literary Works of Art (1912). The "Nederlandsche Vereeniging van Letterkundigen" has its Office for copyrights; the musical world has its Bureau for musical copyrights.



CHAPTER XIII.

EDUCATION.

If the civilisation of a nation can be gauged from the measure of its contribution to science, art and literature, a no less reliable guide is the extent and organisation of the education available to its youth. In this respect also the Netherlands are entitled to a foremost place. The country is indeed in Europe at the head of the list of State expenditure for education. No less than 22 % of the Dutch State budget is devoted to education: in Denmark the percentage is 20.5, in Sweden 19.8, in Norway 17, in Rumania 11.1 and in Bulgaria 10. The aforesaid percentage assumes even greater significance when it is known that in the Netherlands a very large proportion of the elementary schools are so-called voluntary schools, the cost of which until 1920 was largely defrayed by the parents. Since that year the Elementary Education Act guarantees the financial equality of both public and private education in such manner, that the salaries of the teaching staffs are paid by the State and the schoolpremises and working expenses by the Municipalities.

In the system of education in the Netherlands which is given in this article), the principal features are the following:

Preparatory elementary education is obtainable in Kindergarten schools, mostly Fröbel schools, some also organised on the Montessori method. Both municipalities and societies or private persons support these schools.

Elementary Education is based on the Compulsory Education Act of 1901, according to which all normal children from their 6th to their 13th year must attend an elementary school, and on the Elementary

Education Act of 1920. The State now spends on these schools \pm 90 million florins annually and the Municipalities \pm 35 million. They now number \pm 8000, the pupils 1 110 000, and the teachers \pm 35 000. One seventh of the population therefore is always subject to compulsory education.

This kind of education is divided into ordinary, continued, extended and extraordinary elementary education. The last named category has the care of mentally or physically deficient children and is very diversified. There are no less than 83 schools for the feeble-minded, 6 deaf and dumb institutes, 4 blind institutes and 3 schools for children of defective hearing whilst there is in preparation the education of psychopaths and deformed children for whom already 1 and 2 private schools are respectively in existence. The training of teachers for elementary education is now carried on in 29 State-, 69 private and 5 municipal normal schools.

Beginning with the elementary school the pupil may afterwards follow two courses: either by attending the secondary schools, which prepare for the University or Academy, or he may choose a course which is more especially adapted to technical education.

The extended elementary education supplements the knowledge obtained at the elementary school by the addition of French, German, English and mathematics.

For the many pupils, who leave the elementary school and do not pass on to intermediate education (64 % of the pupils between 13 and 18) the continuation classes are intended, which are held in "courses for social upbringing". A reorganisation of this method of education is proposed, which aims at adopting the method of the so called free education combining every imaginable subject.

The education in the secondary Schools is of a twofold kind: the Municipal High School (with a 3 or 5 year course) as also the Gymnasium provides a course preparing for the entrance to the University, while the Intermediate Technical Schools (to which also belong the Agricultural and Nautical schools) give a business education. The literary-economical section of some of the Municipal High Schools and likewise the still young, but rapidly progressing Lyceums, a form between the M. H. S. and the Gymnasium, deserve notice. As it is very difficult to determine whether a 12 or 13 year old pupil will develop in the direction of mathematics or in that of literature, the pupils of the Lyceum are divided not until after the second year. As soon as this class has been gone through it is decided whether the pupil shall take the classical or the scientific course at the Lyceum. This institution therefor delays the choice of a career to a time when a decision can be made with greater certainty. There are at present already nearly 30 Lyceums, of which half are municipal and half private ones. The number of M. H. S. is \pm 150, viz. 49 State-, 52 municipal- and 59 voluntary M. H. S. The State expenditure for Intermediate Education is \pm 8 million and that of the municipalities about the same amount. The number of municipal commercial day schools is 19, that of the private ones 22. In intermediate education care is being bestowed in an increasing degree on physical education for which purpose the Academy for physical education at Amsterdam is training teachers.

A higher Education (training for agricultural and industrial pursuits is dealt with separately here after) is given at the Gymnasium; there are at present 39 public and 40 voluntary Gymnasias, as well as 46 pro-Gymnasias, Latin Schools, Mission schools, Mission

institutes and such like, which differ from a Gymnasium in that respect that they do not prepare for the entrance examination to the University.

The Netherlands have six Universities and four Academies, viz.: the State Universities of Leiden, Utrecht and Groningen, the Municipal University of Amsterdam, the Free University (Higher Education on a Religious Basis) at Amsterdam and the Roman Catholic University at Nymegen, also the Technical Academy at Delft, the Commercial Academy at Rotterdam, the Agricultural Academy at Wageningen and the R. C. Commercial Academy at Tilburg. The Universities number altogether ± 8500 , the Academies ± 2300 students. The Higher Education now costs the State 11.3 annually million florins, the Gymnasia costing the municipalities 1.8 million florins net.

The importance of the Universities is increased by a large number of special chairs, of which Leiden has two, Utrecht nine and Amsterdam seven. The Leiden University has a special chair for pedagogy, one for physics, one for modern French literature and one for tropical hygiene: the last mentioned one is closely associated with the Institute for Tropical Diseases at Leiden. At Groningen there is a special chair for the teaching of Christian Religion and doctrinal Theology. At Utrecht special chairs have been established for the study of the history of ancient Egyptian Art and of pre-Historic Asia, for the English language and literature, the French literature, the religious communities, the origin of Christianity, logic (including metaphysics, psychology and ethics), the German language, Apologetics of Christianity, psychological development, the Spanish language and literature, geology and musicology. By the Fund of Indological Studies separate chairs for the study of Indian law, literature and philosophy have been founded here.

There are also some special faculties at the Municipal University of Amsterdam viz.: for the exegesis of the New Testament, Thomistic philosophy, pedagogy, hygiene of the native population of the Dutch Overseas Territories and anthropology, tropical hygiene, knowledge of animal parasitism in man in the Dutch Indies, Colonial ethnology. The last four faculties were founded by the Colonial Institute at Amsterdam. All the other faculties mentioned above have been endowed by religious denominations and scientific societies or institutions which in this way give a form to special currents of thought or interests.

The Technical Academy, since 1928, has given a new diploma viz.: that of engineer of physics.

The Higher Education also includes the training of ministers of religion and ecclesiastics, which is carried on by the theological faculty of the Universities and Theological schools and Seminaries, maintained by the various religious denominations.

Both the Universities and the Academies have power to confer the degree of doctor honoris causa, which is conferred upon persons who have rendered great services to the country in science, art or economics.

The Educational Council which has been exactly ten years in existence, is an Advisory College, which assists the Minister of Education, Arts and Sciences in all branches of education. There is a separate Advisory College for physical education.

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Education, which is closely connected with the economic life: agriculture, industry, commerce, navigation, fishery, mining, arts and crafts, housekeeping and female handicrafts, is wide-spread in the Netherlands and receives in every respect the assistance of the authorities.

First of all should be mentioned here Industrial Education which since 1919 has been regulated by law and has originated entirely from private initiative. The development of industrial life in the direction of the medium and big industries caused the need of professional training outside the factory to increase at such an extent that the number of training schools had increased seven-fold in the 20 years previously to the passing of the Industrial Education Act, whilst the number of the trade training schools for girls increased from 6 to 95 and the evening drawing schools increased their number six times. The favourable results of this training caused it to be extended so as to embrace agriculture, sea navigation, fishery and inland navigation. The special trade schools have also increased enormously, and in this connection industrial art training may be mentioned, which through the action of the decorative artists has now been put on a firmer basis.

Industrial training now comprises (apart from the elementary industrial schools), 13 intermediate technical-, 12 ocean navigation-, 10 fishery- and 16 river and canal navigation schools, the three last groups being naturally confined to harbour towns, fishing ports and the centres of inland shipping. The mining school at Heerlen affords training for superintendents. A very comprehensive and diversified training is given by the housekeeping-, trade- and cooking schools for girls, which contain \pm 50 000 pupils and train them to obtain certificates for sewing and art needlework, while they also educate them for the duties of workmen's wives, of housekeeper, household help, maid-servant, children's nurse, costume-, house- and linen seamstress, tailoring, embroidery and lace making, for social work, for the care and education of children, etc. There is a Colonial school for women and girls, at The Hague.

Elementary Industrial instruction is given in 80 trade training schools where 29 theoretical and 33 practical subjects are taught. The special trade schools are divided into State- and private schools. To the first belong the Government school for tanners and shoemakers (with State testing depot) at Waalwijk, the Government school for the clay and earthenware industry at Gouda, the Government school for the training of gold- and silver-smiths at Schoonhoven, the Government straw plaiting school at Noordwolde. There is private professional training for tailors, shoemakers, instrument makers, for workers in the textile industry, typography, electro-technics, for confectioners, painters and clog makers.

In this connection reference may be made to the factory training, which, especially in some big industries, receives particular attention, and to the apprenticeship system, which has been applied in the metal- and electro-technical industry and has so far shown good results. Both forms of trade education aim at giving a thoroughly practical training for skilled assistants and begin it as early as possible. For the intermediate technical education there are also preparatory courses.

The evening drawing schools and courses in Industrial training are 334 in number.

Industrial art training is given in nine schools. At Amsterdam there is an Institute for Industrial art which trains pupils not only in needlework, but also in the manufacture of artistic objects produced on a large scale. The Union of "Art in Industry" represents the tendency to cooperate between the artist and the manufacturer. The Society for Trade- and Industrial Art makes it its chief object to obtain a regulation by law of Industrial Art training. At the Academy for Plastic Arts and at the Industrial Art schools instruction is given in drawing and painting, architecture, sculpture and modelling,

decoration, furniture making, the textile arts, the graphic arts and metal work. Altogether 34 subjects are taught. At Amsterdam there is also a course for advanced instruction in architecture.

* * *

Intermediate Agricultural Instruction is given in 31 Agricultural schools, consisting of Government agricultural and horticultural winter schools and State horticultural schools (at Boskoop and at Lisse). Special mention should be made of the Intermediate Agricultural school at Groningen, the Intermediate Colonial Agricultural school at Deventer (with which are connected courses in sugar-, tobacco-, rubber-, tea- and chinchona planting and the Colonial Museum of Agriculture) and the State Dairy school at Bolsward. There are also special courses for the training of teachers for agricultural and horticultural instruction, the keeping of bees and poultry, practical horse-shoeing, mining and a training school for cheese-making at Hoorn.

In some 14 municipalities experiments have been made with elementary agricultural and horticultural instruction. They chiefly took the form of courses of which 577 were held in agriculture and 201 in horticulture; for adults also there were respectively opened 38 and 78 courses. Furthermore a number of special courses have been arranged: for the sorting and packing of fruit, for the study of horses and cattle, shoeing, cattle hygiene, pig-breeding, bee-keeping, poultry-rearing, arranging and tying of flowers, for managers (in cooperative mills, purchase associations and butter and cheese factories), and for milkers, altogether 417 special courses.

* * *

Commercial education are divided into commercial evening schools, commercial day-schools with a 3 and 4 years' course, and advanced commercial schools. Of these two categories there are respectively 121 and 42. The Commercial day-school (with a 3, 4 or 5 year course) is a continuation of the elementary or extended elementary instruction, the advanced commercial school is a continuation of the 3rd class of the Municipal High School. Commercial education has not so far been subjected to specialisation although in arranging the lessons the requirements of the particular industries carried on in the centre where the school is established, are taken into account. A Bill to regulate commercial education by law is in preparation.



CHAPTER XIV.

THE PRESS.

In proportion to the number of inhabitants, the periodical press of Holland is very extensive, both with regard to the number and the diversity of its publications. An estimate of rather more than 2000 news and trade papers is not much of an overstatement. The explanation of this extraordinary wealth in daily, weekly and monthly publications, trade periodicals and union organs is found in the fact that the Dutch are willing and serious readers whose interests extend in many directions, as testified also by the high annual output of books and writings. In addition to this, the tendency to give vent to personal views and opinions, as well as the existence of numerous religious and political sects, have created the need for a number of papers having the same object in view, so that practically every shade of vital and universal interest is represented therein.

The natural consequence of this state of things is that the Dutch press has less influence on its readers than its importance would seem to warrant. Only a few very large daily papers succeed in obtaining a circulation which enables them to exercise a permanent influence on large sections of the population, and even these papers find it difficult, to keep up their circulation. The provincial and local press is likewise exposed at times to sharp competition in securing or keeping subscribers, because, on the whole, the supply is always in excess of the avidity of the reading public.

It is however only this incessant stimulus which has caused the Dutch periodical press to reach such a high standard of reliability and independence, which is generally acknowledged also abroad. In this respect it occupies with

the British press a foremost place when compared to that of all other countries. Both in the leading articles and in the home and foreign news the Dutch paper reveals the same thoroughness, accuracy and sense of completeness which characterizes its readers and sustains their interest. More especially do the objectivity and independence of the newspapers deserve notice which are further promoted by the sharp division between the editorial and business departments, by which the former remains entirely outside the influence of the advertisement section. In the staffs of the Dutch journalists also this independence is found; an editor or reporter, open to the bribes of interested parties, will scarcely be met with.

The development of the periodical press may be said to date from the year 1870. After in 1869 the newspaper tax had been abolished by legal enactment, the handicap on distribution on a large scale had been removed, and the newspaper industry began to rise. Hardly a village in Holland is now without its own paper, although a large number of local papers are what may be called "syndicate papers" that is to say that some have the same general contents for parishes in close proximity to each other, but local news for each parish separately, the paper bearing the name of the parish in question.

In spite of the rapid development of the newspaper industry and the rise of various large papers which vie with each other in providing the reader with news from reliable sources at home and abroad, the cliché (central agency) news are only used to a limited extent. One or two correspondence bureaux provide the papers with identical news, which for official reports and Union communications may be considered practical in every respect, but this kind of reporting forms a very small percentage of the papers own system of reporting, which shows the peculiar stamp and the strong points of each

paper. Such individual reporting is much encouraged in Holland by the accessibility of Government functions and official meetings etc. to journalists, which is undoubtedly due to the prestige of the Dutch press in its own country.

In this connection the organisation "The Dutch Journalists' Circle" deserves honourable mention. It includes nearly all journalists of every shade of opinion and is constantly guarding both the ideal interests of the Press and the material interests of its members. Its more than 600 members are working under a uniformly regulated salary system and may also avail themselves of the pension regulations which have been made in cooperation with the Association of Managers of "The Dutch Newspaper Press". Also in such matters as the education of the journalist and the interests of editors in the event of the sale or amalgamation of newspapers, the Dutch Journalists' Circle has made its influence felt.

* * *

The appearance of the Dutch newspaper has undergone considerable changes in the last few years. While formerly it differed from those of all other countries, especially from American, English and French papers, the Dutch newspaper made a somewhat stiff impression by the scarcely interrupted spaces of the densely printed columns, the system now adopted of large headings and sub-headings has gained ground, so that the attention of readers is at once drawn to the most important events. To this were added illustrations, to which all newspapers now devote either a whole page or which they insert between the text of international events. These alterations were accompanied by an improvement in the advertisement section, the appearance of which through the

influence of the modern way of advertising and improved typographic means, has very much gained in attractiveness. That reporting has been much accelerated the aid of wireless telegraphy and broadcasting need hardly be mentioned.

The enlargement both as regards size and contents of the periodical press has been kept pace with by the modernisation of the printing industry: each newspaper of any importance has now its own rotary press or presses and the largest have at their disposal presses of a capacity of 20 000 sheets per hour. How well the Dutch printing industry is equipped in this respect is proved by the rapidity with which a printing establishment at the Hague in the days of the general strike in England (May 1927) carried out the instructions of the Daily Mail to print daily the Overseas Daily mail (with an edition of 30 000 copies). "These competent Dutch helpers did their work admirably" thus the Daily Mail of the 12th of June 1927.

* * *

Whoever wants to form an idea of the development of the Dutch Press from its earliest beginnings- the oldest newspaper dates from 1632 — may have the opportunity to do so in the Dutch Press Museum at Amsterdam, where a collection of 30 000 papers, divided into 2700 issues, has been collected and is being regularly supplemented. This Museum also possesses a library, which is arranged as a reading room.

By way of information it may further be mentioned that the large (international) newspapers with their own correspondents in foreign capitals and travelling reporters, appearing in morning and evening editions, are: the "Nieuwe Rotterdamsche Courant" (Rotterdam), the

“Algemeen Handelsblad” and the “Telegraaf” (Amsterdam), “The Vaderland” (The Hague). The chief organs of the various political parties are: “the Standaard” (anti-revolutionary, Amsterdam), “the Nederlander” (christian historical, The Hague), “The Maasbode” (Roman Catholic, with morning edition, Rotterdam), “Het Volk” (social-democratic, Amsterdam).

The chief provincial towns and practically all towns of more than 20 000 inhabitants have their newspapers, whilst the smaller towns and villages are furnished news either by the provincial press or by local or syndicate papers.

A very large number of church and political papers, union organs and trade periodicals, is issued weekly, fortnightly, monthly or quarterly by the Press. Here especially sectarianism and shades of opinion play their part, resulting in this sphere in a continual interchange of ideas, closely connected with the vicissitudes in the lives of organisations.

The illustrated press has been very much enlarged during the last few years, and in almost every Dutch family an illustrated paper is found on the table by the side of the daily paper. For humoristic and caricature papers Holland does not offer a very wide field: remarkably large is therefore the number of foreign comic papers which find a sale in Holland and from which Dutch papers frequently print extracts.

As a rule the Dutch subscribe to papers; the sale at railway stations and paper-stalls depends chiefly on the travelling season and on the occurrence of very important events and is usually not more than 5 % of the edition. It is also typical of the Dutch reader that the newspaper is for him a daily guest of the family: each member finds something in it to his liking, and because he is home loving by nature, he prefers to read his paper at home.

Hence also the very varied contents and the provision of special features for women and children, for sport-lovers and radio-amateurs, for amateur photographers, for chess- and draughts-players, etc. Special praise must also be given to the foreign correspondence of the great papers, and their very extensive and complete information on such subjects as finances and economy.

The distribution of Dutch newspapers abroad is not limited to Dutch subscribers there, but is carried on in the European capitals also at railway stations and paper stalls. Several papers print a mail edition for the benefit of the many countrymen who have gone to reside in the colonies.

The last few years have also witnessed the establishment of an eminently satisfactory news service between Holland and the Dutch East Indies, known as the "Aneta" which has already contributed greatly to the rapid, reliable and extensive exchange of information between these two parts of the world. The contents of the Indian papers are taken over in minute details by the press, immediately on the arrival of the mail.



CHAPTER XV.

SPORT.

Of the thirty odd kinds of sport, which are practised in the Netherlands, there is one, which far surpasses all others in popularity: viz. football or "soccer". Contrary to England, where football shares its popularity with cricket and its practice is limited to a period lasting from the beginning of September to the beginning of May, football in the Netherlands so predominates over all other games that in each season matches are held which continue far into June, to the great neglect of cricket and other summer sports, all the more so as in the middle of August the football begins to roll again.

The Royal Dutch Football League, founded in 1889, numbers nearly 400 affiliated clubs, and controls twenty local or divisional leagues, which regulate the lower class football. The number of members of the Dutch Football League and its subsidiary leagues is estimated at 65 000, which is nearly 1 % of the population of the Netherlands. Since 1897 a match for the championship of the Netherlands has been played annually, for which purpose the 50 first class clubs are subdivided into five sections of then clubs, the champions of which compete with each other in the spring. Although about the year 1894 our players had already come into contact with foreign football associations — in that year an English club amongst others paid a visit to Rotterdam — the official international matches only date from 1905. Professional football is not officially recognized in the Netherlands.

Cricket, which in England is second only to football, is of little importance in the Netherlands,

although this game has been practised there for nearly 50 years. There remains however a relatively small circle of cricket enthusiasts, who play their matches without any interest whatever on the part of the public. Here also only amateurs are known; the Dutch Cricket League, founded in 1883, is the leading organisation and is composed of about 30 clubs and three sub-leagues. Since 1891 Dutch championship matches have been organised, whilst games are played every year with English touring elevens. The prolonged football season is a contributory cause of the lack of progress of cricket as nearly all cricket clubs play on fields which are used for football during the winter.

A peculiarly Dutch sport is B a s k e t B a l l, which outside the Netherlands is only practised in a small part of Belgium. This sport, which is practised by more than ten thousand players, is based on a Swedish hand ball game, but has in other respects quite different rules. The object of the game, which is played with teams of twelve persons — six ladies and six gentlemen — is to throw the ball — a light kind of football — through a bottomless basket, which is suspended from a pole a few meters high. As in football the game knows forwards, centres and full backs; a match between two teams lasts as long as or football match. The Dutch Basketball League, founded in 1903, numbers 110 clubs, whilst the twelve divisional leagues number a few clubs in addition. Since 1904 matches have been regularly played for the championship of the Netherlands. In spite of the enormous competition of football, basket ball, which is played from September to May on fields of smaller dimension than those for football, has won for itself a steadily increasing support and practice.

H o c k e y also is rather overshadowed by football; hockey players however do not mind this, caring little for public interest in their sport as they are convinced that the admission of paying spectators is the first step towards the loss of their purely amateur status. Hence the Dutch Hockey and Bandy League, established in 1898 forbid the charging of admission fees to their competition matches.

In former years Dutch hockey players numbering about 1000, played the game with rules and sticks, which — like the ball — were in some respects a departure from international hockey. With a view to coming into contact with foreign players, the managers of the leagues decided a few years ago, to introduce the international rules which speedily helped to increase the popularity of hockey. In international matches against Germany and Belgium good results were archived and the excellent performance of the Dutch hockey team in the Olympic Games-when this team won a second prize greatly enhanced the interest in this sport, so that the League, which since 1898 has organized matches for the championship of the Netherlands, now comprises 30 clubs, and has under its control local leagues and is associated with the Dutch L a d i e s Hockey League (founded in 1911) which numbers 20 clubs.

The Dutch C y c l i s t s U n i o n is one of the very few Dutch sporting leagues which recognize professional sport. The cyclists are divided professlnals, independents and amateurs. Throughout the years Dutch cyclists have gained a very fair reputation in the international sporting world. Formerly we had JAAP EDEN, MEIJERS and JOHN STOL, now MOESKOPS who was five times world champion is a rider of international repute. Next to him may be mentioned amongst others PIET VAN

KEMPEN, a great six-day racer. From 1898 to 1928 the sport of cycling in Holland was controlled by the Dutch Cyclists League, which numbered sixty clubs with about 1500 members; since 1928 the Dutch Cyclists Union has assumed control.

Rugby is very little practised; a special Rugby League has not existed since 1923, but the rugby clubs from Delft, Leiden, Haarlem and Amsterdam, especially students' clubs, play each other regularly.

Base-Ball, popular in America, is played in Amsterdam and the adjoining country under the name of "Honkball"; the Dutch Honkball League, founded in 1912, has under its control twelve clubs and since 1922 has organized matches between 25 teams of nine players.

In swimming the Netherlands have established a reputation amongst others by the performances of the young Rotterdam female swimmers "sis" BRAUN and MARIE BARON, who are credited with three and one world records respectively. The Dutch Swimming League, dating from 1888, numbers sixty clubs with a total of 8000 members. Since the year of its foundation national championship matches have been held every summer; in winter also, thanks to the covered swimming baths, a lively activity reigns in the Dutch swimming world. As regards water polo, the D. S. L. organises contests, which are continually increasing in importance.

The Royal Athletic Union in 1901 undertook the training of athletes, which was also formerly done by the football league. Athleticism cannot boast of many followers in Holland, although a gradual improvement in this respect is noticable. About 230 clubs

with 11 divisional sub-leagues are affiliated to the R. D. A. U. Cracks of world-wide reputation are so far wanting in the Netherlands — much to the detriment of propaganda — yet men like PETERS and DE BOER have succeeded in the last few years in winning a British championship, in huge-step-jump (1927, 1928, 1929) and long-jump (1928), respectively.

The English game of golf corresponds to a specifically Dutch game, called "Kolven", which presumably is an ancient form of golf and has been practised for hundreds of years. The Dutch Kolf League (established 1885) unites the \pm 600 kolvers and since 1886 has annually organized a match for the championship of the Netherlands. Golf is played a good deal more; the natural character of the Dutch soil enables excellent golf links to be laid out with little trouble, links which were recently described in "The Times" as a golfers paradise. The Dutch Golf Committee, established in 1926, numbers ten clubs; since 1898 championship competitions have been held every year for professionals and amateurs, which are now managed by the D. G. C.

In a country where there is so much water, the sport of rowing is naturally much in vogue. The students' rowing matches date from 1878; annually five Dutch universities send crews to compete in the students' races, in which the four skiffs with coxswain form the chief item. The Dutch Rowing League, established in 1917, combines both the students' and the citizen's clubs. Championship sailing matches and motorboat races are arranged for by the Royal Dutch Watersport Clubs, which date from 1890. In 1929 a Dutch sculler (BERTHUS GUNTHER) was for the third time the winner of the Diamond Sculls at Henley.

As representatives of Dutch tennis, TIMMER and Miss BOUMAN have in recent years upheld the honour of their country by reaching the last eight at Wimbledon; from amongst the very numerous tennis players, the number of which increases every year and who form part of by the Dutch Lawn Tennis League (founded in 1899), fresh forces will undoubtedly arise in coming years, who will perpetuate the reputation won by the Netherlands in the Davis Cup Competitions.

Horse-racing is practised to a limited extent, as betting on horse-races is prohibited and book-makers are consequently unable to exercise their calling. The Dutch Horse Sport Union (formed in 1923), the Royal Military Sport Club (formed in 1886), the Royal Dutch Hunting Club (formed in 1919) and the Royal Dutch Horse Racing and Tournament Association (formed in 1882) are the organizations in charge of this sport.

A prohibition similar to that of horse-racing applies to boxing; here the Government has not prohibited betting, but in many places — amongst others in the capital of Amsterdam — boxingmatches are forbidden by a municipal regulation.. The Dutch Boxing League, dating from 1911, is the organization in charge of this sport.

Professional boxers find little scope for their activity in Holland and therefore prefer to show their proficiency abroad.

The art of fencing is under the care of the Royal Dutch Amateur Fencing League, established in 1908 and now numbers sixteen unions and clubs, in addition to wich military fencers are united in the Royal Officers Fencing League (formed in 1897) with 400 members and the Royal non-commissioned Officers'

Fencing League (founded in 1901) with 750 members.

Riflemen are organised by the Royal Union of Dutch Sharp-shooters, which dates from 1890.

In Friesland, one of the Northern provinces of Holland, a typically Dutch game, *kaatsen* (a sort of tennis), is practised. The Dutch Kaats Union, established in 1897, numbers 9000 members there; outside Friesland this game is hardly ever played. In Belgium and Northern France a variation thereof is found.

The Dutch Billiard League, founded in 1911, controls 80 clubs with about 3000 members, this being a very small percentage however of the tens of thousand of Dutch billiard players who in a large measure practise this game in cafés.

In the sphere of *Gymnastics* we have the Royal Dutch Gymnastic League, which dates from 1868, including 300 clubs of about 4000 members which has established branches all over the country.

The Dutch Heavy Athletics League (1903), the Royal Dutch Automobile Club established in 1898, with about 5000 members, the Royal Dutch Motorcyclists Association (dating from 1904), the Dutch Skittle Union (establ. in 1909) and the Dutch Union of Archers (founded in 1893), control those branches of sport according to their means and ability, whilst at the same time, the General Dutch Cyclists Union as the largest central tourist body, with about 70 000 members, looks after tourists in the wider sense of the word. In some branches of sports, in addition to the above Unions, Protestant, Christian and Roman Catholic Unions have been formed amongst others for foot-ball, basket-ball and gymnastics.

At the commencement of this article we pointed out that the game of foot-ball exceeds in popularity all other branches of sport in the Netherlands; for a few weeks

of the year however even football must give way to the pre-eminently Dutch sport of Skating. When in the winter the waters are frozen and have been changed into skating-rinks, everybody's thoughts turn to skating, half the population understands the art of skating, not only on the comparatively small and safe surface of enclosed sheets of ice, but also, and especially so, on canals and rivers, as soon as the ice is of sufficient thickness. It is then that the game of foot-ball is so utterly forgotten, that the Dutch Foot-ball League — and with it all other sporting leagues — has to abandon all its matches on account of the attraction of skating; the 65 clubs of the Dutch Skating League only represent a very small portion of the number of skaters, who in this country of about seven million inhabitants may certainly be estimated at a few millions.

This national sport of the Netherlands is nowhere so eagerly practised as in the low country along the sea-shore. Should the winter last long enough to render the canals of the province of Friesland, everywhere safe for skating — generally this only happens once in ten years — then the Eleven Towns tour is organized, which means that a single day eleven towns in that province have to be visited. This tour, of about 200 km (125 miles), attracts hundred of competitors; the winner who takes about 10 hours to cover the distance, is honoured as a national hero.



CHAPTER XVI.

AGRICULTURE AND CATTLE-BREEDING.

According to the statistical data of the year 1928, Holland has a surface of 3 267 000 hectares, 892 432 ha of which are arable land, 1 278 270 ha pasture-land, 108 310 ha horticultural soil and 252 890 ha woodland. By the draining of the Zuiderzee it is hoped that an additional area of 224 000 hectare will be gained.

The total number of inhabitants, on the 31st of December 1928 was fully 7 731 000, so that the average density of the population was then almost 236 persons per square kilometre, a figure which is very seldom exceeded. It is therefore not surprising that Holland only produces a comparatively small part of the wheat the population requires, and that considerable quantities of this article must be imported. This is the proof of the argument that such an import, looked at from an economic point of view, cannot be considered undesirable in itself, as it is quite evident that the substantial export of Dutch agricultural products (fully $\frac{1}{3}$ of the total production) is closely connected with the free import of commodities needed in this country which can be manufactured abroad under more favourable conditions than in Holland. This, however, is not the only factor of importance in this matter. The steady increase of the export of Dutch agricultural products is also due to technical improvements to which the producers concerned give more and more attention, it being their earnest desire to adapt their production as much as possible, to the demand abroad and to the level of requirements in other countries.

In certain matters the producers have always had the support of the Government, the authorities being fully

convinced of the great value a wise policy regarding the instruction and guidance of agriculturists in technical questions as well as in those pertaining to purely agricultural matters may have, they have done the needful in this respect. Therefore the Dutch farmers have obtained sufficient knowledge of scientific methods, in order to willingly co-operate in making technical improvements as well as using new methods for increased production and sales.

Fully one half of the Dutch agricultural and horticultural enterprises have only an area between 1 and 5 hectares which is due to the small size of most of the farms (generally from 0.5 to 5 ha). About 22 % have an area of 5—10 ha; quite 15 % one from 10 to 20 ha; of fully 10 % the area is 20—50 ha, while only 1 % consists of an area between 50 and 100 ha, and not more than 250 agricultural enterprises (not exceeding 1%₀₀ of the total number) have a larger area than 100 ha. On less fertile soil, in the East and South of the country, there are numerous farms of an area between 5 and 20 hectares; those between 20 and 50 ha are more to be found in the fertile districts of the North and West.

A large number of peasants (about one half) work farms they have rented, and also most of those who own the property are not very wealthy. Owing to this fact, the sons of the peasant can, on the whole, not be missed on the farm for some years, although it is very necessary that the young generation should be prepared for their work, at good schools. To overcome this difficulty, the Government, in addition to the lower agricultural and horticultural schools, has founded a large number of institutions, where more advanced instruction of a general or special kind is given in all the different subjects of agriculture and horticulture, so that those who wish to avail themselves of this oppor-

tunity can acquire the necessary knowledge, without staying away from home for a long time. In this way the authorities have succeeded in furnishing necessary information to all concerned. The lessons are given by teachers who hold certificates for lower schools and who in addition are qualified to teach agricultural subjects.

In order to improve the lower agricultural and horticultural schools, in 1921 and 1922, some primary schools were founded, where during 4 years, on 1 or 2 days of the week, instruction is given by those who have theoretical as well as practical knowledge agriculture. The number of those schools is much increasing.

Secondary agricultural education can be obtained, besides at the Agricultural High-School at Groningen, the Colonial Agricultural High-School at Deventer, the Government Dairy School at 'Bolsward, also at agricultural and horticultural winter schools, with courses generally lasting two half-years, during the winter, although at some of these schools they are longer. There farmers are trained who will later manage important enterprises of medium size. They can acquire in those schools the necessary information for the application of the latest scientific methods to the exploitation of the ground.

There are further courses given for the training of agricultural and horticultural teachers, for instructors in the rearing of bees, of poultry and in practical horse-shoeing, etc.

The higher agricultural instruction is given at the Agricultural College and affiliated institutions at Wageningen, the object being here the scientific training of those who aim at important positions in the industry of agriculture. Especially an opportunity for study is given here to future agricultural and horticultural instructors and- advisers.

Those advisers are appointed by the Government in order to give farmers, in addition to the knowledge and the practical training obtained at school, an opportunity for constantly receiving new information and for being furnished the latest data concerning all questions in agriculture and horticulture. At present most of the provinces have at least one adviser in agriculture, one in horticulture, one in cattle-breeding, one in dairy matters, while in addition to those there are a number of advisers in poultry and bee-rearing working all over the country.

In connection with the above there should be mentioned the Government Experimental Stations for Agriculture whose task it is to make experiments and investigations which are in the general interest of agriculture and in order to give farmers an opportunity of having fertilizers, cattle-feed, seeds and other requirements examined by impartial experts. The Stations at Groningen and Hoorn are intended for the supervision as well as the actual making of experiments and investigations on subjects, pertaining in the first place to the tilling of the ground and pasturage, in the second place to those of dairy produce and cattle-feed, while the Geological Institute at Groningen serves purposes of making physical and chemical tests of the soil. Of the two Experimental Stations at Wageningen one is intended for the examination of seeds, and the other for that of cattle-feed, of agricultural produce and kindred matters. The Station at Maastricht is used for the testing of fertilizers.

The scientific staff of the well-equipped Stations, by examining the above-mentioned subjects, helps to solve many difficult problems in the domain of agriculture, while the Experimental Stations also serve the purpose of preventing deception in the trade of products used in agriculture.

There ought to be further mentioned the endeavours

made by the Government to overcome contagious diseases of the cattle, as well as the measures taken by the authorities for establishing a service for the curing of plants' diseases, for the protection of honest trade, for the inspection of dairy produce, the existence of a foreign Information Office for agriculture and that of agricultural statistics. In addition to this, the different Government publications on agricultural subjects deserve notice.

Agriculture is the special charge of the Agricultural Section of the Departement for Home Affairs and Agriculture. That the forces working together in this respect have been eminently successful, may be seen from the very large increase of the yield of products per ha which in some cases amounts to 100 % in 50 years. This is illustrated by the table hereunder.

Annual Average Yield in hectolitre
per hectare:

Years	Wheat	Potatoes for consumption	Potatoes for factories	Pease
1871—80	22.7	125		19.6
1881—90	23.4	153		21.7
1891—1900	24.9	181		23.4
1901—10	29.6	176	350	24.8
1911—20	32.9	220	345	25.3
1921—25	37.2	231	365	31.1
1928	43.8	274	503	40.8

In 1925, the Agricultural Section published data about the value of the production of Dutch soil in 1923. Such data are being collected now in respect of the year 1928. In the appended table the data about 1923 and part of the provisional figures about 1928 are to be found, the latter being still subject to correction. There by "gross produce" is meant the total value of the crop, without

deduction of what was used thereof on the farms, as e.g. cattle-feed, seeds, etc. From this the value of the "net produce" of the soil is arrived at by deducting the value of imported fertilizers, cattle-feed and seeds from that of the total net produce. This is then classified under the heads of "home consumption" and "exports".

Value of the Produce of the Soil in 1923 and 1928.

	Gross produce		Net produce		Home consumption	Export
	1923	1928	1923	1928 ¹⁾	1923	1923
						mill. fl.
Agriculture.....	436.9	255.7	429.6	261.-	163.7	92
Cattle-breeding .	357.5	528.8	357.5	528.8	272.1	85.4
Dairy	302.5	413.1	302.5	413.1	173.2	129.3
Horticulture ...	131.9	221.-	131.9	221.-	75.7	56.2
Woodland	7.3		7.3		5.3	2.-
Total	1,236.1		1,054.9		690.-	364.9
Expenses incurred, cattle-feed, fertilizers, etc.			194.5			
Net produce of the soil			860.4 million fls.			

¹⁾ Provisional figures.

What is particularly striking in these figures is the large part of the produce that is exported. This favourable circumstance is not exclusively due to the excellent condition of the Dutch soil, nor to the efficient manner in which agricultural work is carried on, but especially to the favourable geographical position of Holland, amongst countries whose purchasing power is strong, and finally to the first-class means of traffic at the disposal of this country.

The largest part of Dutch production is represented by cattle-breeding, which, together with the dairy industry, in 1923 and 1928 contributed the following amounts in the respective years:

	1923	1928		
Cattle	129.5	131.1	mill. fls.	
Pigs for home consumption	84.7	150.7	" "	
for export	46.2	91.9	" "	
Sheep and goats	17.3	15.2	" "	
Horses	9.9	8.—	" "	
Poultry	69.9	131.9	" "	
	<u>357.5</u>	<u>528.8</u>	" "	
Dairy produce:				
milk for consumption	56.7	82.3		
milk products	33.8	32.6		
butter	120.—	185.9		
cheese	92.—	112.3		
	<u>302.5</u>	<u>413.1</u>	" "	
	660.—	941.9	" "	

The predominance of animal production can be explained by the proportion between the total area of pasture-land (1 278 300 hectares in 1928) and that of arable land (1 000 700 hectares in 1928). A considerable part of the latter area is even taken up by the cultivation of plants used as cattle-feed. In spite of that, large quantities thereof have to be imported.

The latest cattle census was taken in 1930, the returns of which were as follows:

Horses	296.900	(all sorts, large and small)		
Cattle	2.352.000	" "	" "	" "
Sheep	484.430	" "	" "	" "
Goats	130.900	" "	" "	" "
Pigs	1.990.000	" "	" "	" "

In the Netherlands the cold-blooded as well as the warm-blooded horse is bred. In the last decennia, the breeding of the cart-horse of the Belgian type has strongly developed, especially in Zeeland, Limburg, Western North-Brabant and upon the South-Holland islands. The breeding of the warm-blooded horse is carried on especially in Groningen, and Gelderland, as well as in some other districts, less important in this respect.

The Government has made the examinations of stallions obligatory. Horse-breeding is further promoted by the efforts of different pedigree associations.

Dutch cattle belong to three breeds:

the Frisian black and white cattle, the red and white cattle from the Meuse, Rhine and Yssel districts and the black cattle from Groningen.

The first mentioned kind is the most numerous, being found in many provinces, most of all in Friesland, North- and South-Holland and Groningen. As regards the yield of milk, this breed is unsurpassed.

The red and white cattle from the Meuse, Rhine and Yssel districts is chiefly found in Over-Yssel, Gelderland, North-Brabant and Limburg, while the black sort from Groningen is bred especially in that province and a small part of South-Holland.

Dutch cattle has been famous and much in demand abroad, for many years and, owing to its special qualities, foremost of which is the large yield of milk, is to be found all over the world. By the practical application of new discoveries in the science of cattle-breeding, the quality of this cattle has been still more improved, in the last twenty years. The associations for cattle pedigrees have largely contributed to this result.

The increase in the exports of butter, cheese and milk products may be seen from the next table:

Exports of	Butter	Cheese	Condensed Milk	Milk Powder
in 1923	23.926	61.982	103.118	6.300 tons
" 1924	34.732	77.271	106.016	9.593 "
" 1925	39.734	79.702	112.699	11.090 "
" 1926	45.554	84.236	132.893	12.013 "
" 1927	47.952	97.326	147.328	13.906 "
" 1928	46.941	92.080	160.833	15.223 "
" 1929	47.321	95.815	171.486	15.579 "

Until the beginning of this century, the sheep bred in the Netherlands belonged to the race kept on heaths and downs and to some English breeds, especially the "Lincolns". Later the excellent qualities of the Texel sheep made this breed more prominent, while the English breeds diminished everywhere.

Another kind of sheep that is bred in Holland is the Frisian milk sheep which is very prolific and unexcelled in the yield of milk.

The pig breeds include in the first place an improved German race and the large Yorkshire pig, as well as cross-breeds of those kinds. Pigs are killed when they have attained to different ages and different weights. Fat pigs are generally found in cheese manufacturing districts, while in parts of the country where the making of butter predominates pigs of less weight are found which have more flesh and less fat. They are chiefly used for bacon and are killed as soon as they have attained to the weight of 80-100 kilos.

In 1929, 15 388 tons of fresh pork and 47 576 tons of salt pork (bacon) were exported. These figures show the extent of pig-breeding which moreover supplies

pork for home consumption, the latter being considerable, in proportion to the density of population.

After the War, poultry-rearing began to take a very prominent place in farming. The cattle census of 1930 shows a total of 24 335 000 poultry. The increase of egg production is illustrated by the following figures:

Years	Imports	Exports
1900	5 000 000	3 000 000 kilos of eggs.
1913	16 000 000	23 000 000 „ „ „
1927	7 000 000	70 000 000 „ „ „
1929	3 000 000	82 000 000 „ „ „

Of the eggs exported in 1929, 58 000 000 kilos were sent to Germany and 21 000 000 kilos to England.

It should be noted here that Dutch poultry has not only increased in numbers, but that also the quality thereof has been considerably improved, as well as that of the products. It is becoming more and more the habit to procure pure breeds, while those who make a business of rearing poultry see that their charges are well housed and that they have all they need. The breeds most sought after are the Leghorns, the white Wyandottes, the Rhode Island Reds, the Barnvelders and the Welsumers. The two last mentioned are native breeds; their eggs are a dark brown, they have a good weight and are much in demand in England.

Although the value of agricultural produce falls behind that of cattle-breeding, it is still very considerable. Of the total area of 886 787 hectares (provisional statistical data for 1929) a large part was taken up by the growing of fodder. The area used for that purpose was as given hereunder:

47 920 hectares used for clover and other fodder plants, as well as for artificial pasture-grounds;

56 363	hectares	used for	beets, turnips and parsnips;
159 346	„	„	„ oats
196 415	„	„	„ rye (for the greater part);
31 542	„	„	„ barley;
11 009	„	„	„ field-beans.

Among the cultivated plants of which large quantities are exported, the following deserve mention:

Area planted in 1929		with
(provisional figures)		
143 236	hectares	food potatoes
37 261	„	potatoes for factories
54 007	„	sugar-beets
44 087	„	pease
19 205	„	flax.

Also different kinds of seeds. The exports of articles derived from those plantings, in 1929 were as follows:

food potatoes	517 800	tons
potato-flour	114 730	„
straw-pasteboard.....	245 388	„
sugar-beets.....	251 700	„
pease	68 760	„
flax	51 800	„

Besides agriculture and cattle-breeding also horticulture occupies an important place in the economic life of Holland, which, for centuries past, has been known as the kitchen-garden of Western Europe. The favourable circumstances for the development of this industry may be seen e.g. from the comparatively high value of the

total produce, which in the years 1923 and 1928 was as given in the appended table:

Articles	Production value in mill. fls.		Home Consumption 1923 value mill. fls.	Exports 1923 value mill. fls.
	1923	1928		
Vegetables	60.-	120.-	42.4	17.6
Fruit	15.9	20.-	10.7	5.2
Flower-bulbs	30.-	45.-	3.6	26.4
Produce of Nursery-gardens ...	6.-	8.5	1.5	4.5
of Private gardens .	12.-	12.5	12.-	—
of Horticulture	6.-	10.-	5.5	0.5
Vegetable and flower seeds	2.-	5.-	—	2.-
Total	131.9	221.-	75.7	56.2

These statistics show that the production of vegetables is the most important. The foremost place is held in this respect by the province of South-Holland with the well-known Westland district. The importance of horticulture is evinced, above all, by the extension of hotbed culture. According to official measurements of the total surface covered by hotbeds for raising vegetables and fruits and the floor-space of storehouses, in 1917, this area has increased from 1 898 915 square metres, in 1912, to 10 015 726 sq. m. in 1927.

In the Westland district chiefly tomatoes, cucumbers and grapes are grown. Districts that have a reputation for the raising of vegetables are also found in the rest of South-Holland, in North-Holland, Friesland and Limburg, where e.g. cabbage, early potatoes and early vegetables are grown in abundance. Fruit-growing is especially

carried on in Gelderland and Limburg. The specifically Dutch culture of flower-bulbs includes an area of about 6000 hectares in the dunes near the seashore and provides remunerative work for a large number of labourers. In 1929, the export of flower-bulbs amounted to fls. 40 365 000. Nursery gardens are chiefly found in the peat districts of South-Holland (Boskoop) and further in North-Holland (Aalsmeer, Naarden, Bussum) and in North-Brabant (Oudenbosch, Roosendaal, Zundert). The chief centre of flower culture is Aalsmeer, especially known for cut flowers and shoots for propagation. The growing of seeds for horticultural purposes is chiefly carried on in North-Brabant, Groningen and South-Holland.

In the development of horticulture the organization of the sale of the produce has played an important part. The produce is sold by auction, whereby an opportunity is given to producers and dealers to make transactions in the simplest and most practical way. These auctions have been established by the horticulturists without the support of Government. The number of auctions where garden produce is sold is now about 180, 134 of which are united with the Central Bureau for Horticultural Auctions. The success of these organizations can be explained by the advantage the members enjoy through the possibility of having their produce regularly sold for cash, at prices corresponding to the quotations of the large markets.

Different measures have been taken to promote the export of agricultural products by guaranteeing the quality thereof and to prevent that foreign buyers are disappointed regarding the excellency, the hygienic conditions, the assortment, the packing, the measure and weight of those goods. In connection therewith the Agricultural Exports Act, of 1929, which contains regu-

lations about the guaranteeing of definite qualities to exports derived from agriculture, horticulture, cattle-breeding and the dairy industry deserves special notice.

By the official control of butter a guarantee is given to foreign importers that the article is unadulterated and does not contain more than 16 % of water. By similar regulations with respect to cheese the purity of that product is likewise warranted, as well as a certain percentage of fat. Nine butter control stations and as many cheese control stations which have been established by interested parties discharge their duties of testing the goods, under the supervision of the Government. Only butter and cheese bearing the official mark are admitted for export.

Two organizations, viz. the Central Committee for the inspection of plants in Holland, fixed at Wageningen (an association of producers) and the General Inspection Office for the testing of the seeds of grain, of vegetables and flowers and of shoots to be laid for propagation (an association of dealers) exercise supervision over the origin of those products, in order to be able to give the necessary guarantee with respect to them, after having examined specimens in the fields and samples out of bales in the storehouses. When these goods are sold, each bale or bag is sealed with lead, after a certificate has been placed in each receptacle. Owing to the fact that attempts have been frequently made to forge those certificates, it is very necessary for the parties concerned they should always satisfy themselves that the seal of the sack is intact and that the certificate found therein was indeed made out by one of the two above-mentioned organizations.

For the promotion of the exports of vegetables, fruits and first class potatoes, an Export Control Office has been established at The Hague, 80 Javastraat, the aim

of which also is to give guarantees to foreign buyers, regarding the quality, the assortment and the packing of articles sent under the mark of this organization of producers and dealers, which represents a lion holding the Dutch flag. Such control is exercised over potatoes, tomatoes, cucumbers, gherkins, onions, cabbage cauliflower, grapes, apples and pears.

By founding co-operative associations, the Dutch farmers have considerably promoted the development of agriculture in the Netherlands. The co-operative system is used in purchasing raw materials, (fertilizers, cattle-feed, seeds, etc.) as well as in manufacturing the products obtained therefrom (with factories for making butter, cheese, sugar, potato-flour, straw-pasteboard) and finally with the sales of those products (auctions for potato-flour and the produce of horticulture); it is further applied to agricultural credits, insurances, etc. The importance of cooperative associations is evident from the large share they have in such transactions. According to an official estimate, about half of the purchases of fertilizers, and cattle-feed, more than 70 % of the production of butter, factory cheese, potato-flour, and sugar, about 90 % of the sale of vegetables and about 50 % of the sale of fruit must be attributed to this system. In addition to this, the agricultural credit is chiefly in the hands of two such co-operative associations.

By the united efforts of farmers, organizations have been formed whose activities extend to almost every domain connected with agriculture. These free organizations devote themselves to the study of all important questions which bear on farming, in order to render the conditions which are of importance to the different enterprises as favourable as possible.

This striving in common, on the part of the farmers, aided by the efficient guidance and wise care of the Government, has enabled Dutch agriculture to reach that level which it occupies at present. It is largely due to those factors that the industry has been established on a rational basis, so that it could weather the storms of hard times and unfavourable economic conditions, without having to resort to artificial means.



CHAPTER XVII.

INDUSTRY.

The industries of the Netherlands, in their nature and development, bear in a much larger degree the stamp of the circumstances in which they have grown, than a definite national character. They result partly indeed, from the conditions of the soil, in as much as coal and salt resources are the means of maintaining a limited mining industry, whereas the extensive area devoted to agriculture and cattle-breeding sustains a far more considerable provision trade, but to a large extent they are also dependent on the raw materials which are required by nearly all branches of industry. Here however circumstances are very favourable, the Netherlands being in a position to draw the principal tropical products from their Overseas Territories, whilst the excellent situation of the country as regards world traffic, facilitates the importation of raw materials. These circumstances have promoted the formation of a large international market such as Dutch industry has acquired and still succeeds in extending by the quality and finish of its products, as well as by the efficiency of its information service and propaganda.

Native industry in the narrow sense of the word is chiefly represented by the dairies, the export slaughter-houses, the potato flour-, straw-board and beet-sugar factories, the brick works and the earthenware industry, the jam- and preserve factories, the flour mills and others. Wholly or partly dependent on the Overseas Territories are the cocoa-, sugar-, rubber- and cigar factories, the rice mills and oil refineries, the coffee- and tea industries, the saw mills, the petroleum- and motor-spirits industries, etc. A third kind of industrial branches depends on the

importation of a variety of raw materials from abroad; the shipbuilding and machine industry (partly supplied with pig-iron by the Dutch blast-furnace industry operating since 1924, with which, as in the Limburg mines, the production of nitrogen on a large scale is combined), the textile industry, the margarine factories, the incandescent lamp and radio industry, the artificial silk industry, the diamond industry, the distilleries, the shoe factories, the tapestry works, the glass industry, the breweries, etc.

The natural consequence of such an extensive industry, dependent for its raw materials on foreign supplies and exporting a large proportion of its production, is that the need makes itself felt for a strongly developed shipbuilding and machine industry. These branches of industry which are strongly represented in this country, are so placed that they are not only able to work for its own mercantile marine and domestic requirements, but also to supply on a large scale the demand from abroad. On the world's shipbuilding list Holland occupied the third place; the (137) ships'wharves launched ships of 232 000 tons gross tonnage capacity in 1929. The ten largest wharves produce about as much as all the others together and are arranged for the building of large passenger- and cargo boats, whilst they also furnish the complete boiler and engine installation of such vessels. Special mention should be made of the dredging material, floating cranes, tin mills, tank-ships, ocean tugs, ferries, floating bunker machines, submarines, and similar constructions, delivered to all parts of the world and for the building of which a few wharves are specially fitted.

The strongly differentiated machine industry supplies both for home and foreign use locomotives, turbines for ships and motor engines for sugar factory plants, machinery for polder drainage and also machinery

for the many above mentioned factories. It further specialises in the making of generators and transformers, mechanical stoking installations, refrigerators and freezing machinery, weak current installations, wire- and cable supplies, compressors, exhausters, driving plants, etc. Both the electro-technical industry and instrument making are kept well employed by an extensive factory system.

Like the output of the 106 machine works that of the 43 construction workshops is also constantly forwarded abroad; bridges, petrol tanks, transport cranes, piling apparatuses, haulage machinery and cutting implements from Holland, as well as harbour works, are found in many places abroad in which they have been erected, amongst others in Shanghai, Chefoo, Macao, Hongkong, Teneriffe, Las Palmas, East and West Indies. As feed-industries, supplying the above mentioned trades, we may mention the 64 iron- and steel foundries, the 21 screw and bolt works and the 19 metal rolling works. Finally we would refer in this matter to manufacturers of special articles, such as agricultural implements, bicycles (38), tin plate (10), metal ware (30), fire engines, safes, railway carriages, trailers, etc. The entire metal industry employs a staff of over 41 000 men.

The youngest branches of this industry, which may be said to constitute one of the chief sources of income of the Netherlands, are the a e r o p l a n e c o n s t r u c t i o n and the r a d i o i n d u s t r y. Her geographical position as well as her overseas dominions have also given Holland a place of importance in the trade of flying-machines, especially through the FOKKER planes used in 28 countries, which were originally exclusively made here, and later on through the traffic aeroplanes made by the factories of KOOLHOVEN. The firm "Aviolanda" at Papendrecht builds the hydroplanes for the Royal Navy in the Netherlands Indies, the CURTISS-HAWK-bombthrowers

for the Royal Army in the Neth. Indies, and PANDER at The Hague makes sport planes and flying machines for the National Aviation School at Rotterdam. The radio industry has its centre in the largest industrial enterprise in the country viz. PHILIPS at Eindhoven, where over 20 000 men are employed (partly also for the making of incandescent lamps, 30 000 daily) having a laboratory of European celebrity and its own machine works, which are of great scientific assistance to the trade. In the matter also of radiographic communication this factory has done pioneer work and occupies a leading position.

* * *

Another principal source of income in industry is derived from the preparation of fancy bread and biscuits, a branch of industry which, as a result of the rapid growth of the population, is continually being extended and modernised. The 20 flour-mills annually produce about 425 million kilos of flour, which is made into bread in about 750 bakeries. Special mention should be made of the biscuit works which also export on a large scale to tropical countries. The Milling and Baking Depot at Wageningen has the regular control of about 250 flour-mills and bakeries. The number of bakeries in this country may be estimated at 13 000. The completely modernised rice- and barley mills along the river Zaan now perform the work of the former mills, which like so many forms of rural activity have been entirely supplanted by machinery.

A very vigorous branch of industry is that of margarine making, whose centre in Holland is the Margarine Union, which also controls the German market and has branch factories in England. A very large proportion of the output finds its way to England and tropical

countries. Thanks to the increasing refrigerating space on board the mail-boats and the growing number of refrigerator vans on the railways, other milk products from Holland are also extending their sale in all parts of the world. The consumption of margarine in Holland is on the increase at the expense of the butter consumption (The preparation and sale of dairy produce is referred to in the Chapter on "Agriculture and Cattle-breeding"). The export slaughter-houses in the North and South of the country are now also organised for the supply of margarine and lard, of ham and sausages and preserved meat; the largest kill up to 2500 pigs a day, and have their own ice factory, refrigerating rooms and goods vans. Some of them also make soap, bone meal, and bone glue and organo-therapeutic products (insulin prepared from pigs' glands) etc.

The sugar factories and refineries supply raw material to a number of industries: in addition to the biscuit works already referred to, there are the cocoa- and chocolate factories (46 with an annual output of 23 million kilos), the confectionary and drops factories, the jam factories and similar ones. These three groups have an extensive sale in other parts of the world especially in North-America and the tropics. Cattle-breeding and fisheries also supply the raw materials for the numerous preserve factories, whose products, in consequence of the recognized good qualities of our cattle, our pigs and our numerous kinds of fish, have a great reputation.

As regards stimulants, we may refer to the important tobacco, cigar and cigarettes industry, which through the importation of outside wrappers from the Netherland overseas dominions (Java and Sumatra) furnishes a product which is in demand all over the world, and comprises about 275 factories. Then there is the

b r e w i n g industry which annually produces more than 2 ½ million hectolitres of beer and is composed of some very large enterprises; the Amstel-, Oranjeboom-, Heineken and South Holland Breweries enjoy an international reputation and are provided with the most up-to-date brewing and refrigerating plants.

The liquor trade enjoys historic fame, Dutch gin still continuing to be appreciated in other parts of the world and like the liqueurs (for which amongst others the herb-gardens near Noordwijk supply the raw materials) being exported in large quantities. Finally we would mention the yeast and alcohol works.

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The third in importance of the branches of industry is the textile industry, divided for the main part into cotton factories (110) woollen factories (80) and underwear factories (27), which together employ a staff of about 56 000 men and whose annual production represents a value of over 300 million florins. The cotton industry of Twente comprises 21 spinning works and 78 cotton weaving works, most of them connected with bleaching, dyeing and printing works. The wool industry is centred in North Brabant, same as the linen industry, known for its fine damask table linen. As side-branches of the textile industry may be mentioned a flourishing carpet industry, the jute works, the manufacture of various kinds of coverings (gobelins, lace work), the velvet industry (velours d'Utrecht), cord- and ribbon factories, and in connection with other trades the 80 rope-yarns and networks.

The artificial silk factories in the Netherlands, which have now combined their interests, have within a very short time developed into industries of the first

rank and in proportion to the population have the largest output in the world. Exports already extend to 15 countries. At Ede, Arnhem, Breda and (in construction) Rotterdam and Nijmegen, this branch of industry has its largest factories.

Connected with the textile industry is the clothing industry which in the Netherlands covers a wide field and is strongly specialised. The ready-made clothing industry owns large factories, separately for men's and women's, upper- and under-garments (the Jaeger- and under-clothing from Twente); also rain-coats are produced on a large scale and there are many (56) under-clothes factories, numerous factories especially for workman's clothes and uniforms, whilst some factories are entirely devoted to the making of umbrellas and headgear.

* * *

For the timber- and furniture trade Holland, which after England is the poorest in timber of all European countries, derives only a small percentage of this raw material from her own soil, equal to approximately 1/7 of the imports, which in 1927 represented a value of 142 million florins. The greater part of the timber is absorbed by the industries, a little less by the building trade and other quantities are required for agricultural and horticultural purposes and in the coal-mines. Annually about 1500 hectares of firwoods have to be felled to provide the necessary mine-props. The consumption of native timber (500 000 cubic metres annually) is about equal to the new growth. For building new houses in 1927 e.g. 245 000 houses were erected an average of 25 cubic metres per house is required. As to industries, the carpenters' and box workshops require

annually 300 000 cub. metres, the paper works 400 000 and the match and wooden shoe (clog) factories 80 000 m².

The chief branches of the timber trade are the steam saw-mills, case-making works (60), carpentering works (300), coopers (140) and furniture factories (620). Wood-preserving on a large scale is carried on at Dordrecht, which, like Zaandam, Delfzijl and Terneuzen, is a centre of the timber trade. The furniture industry has strongly developed both, in the direction of interior decorative work along artistic lines and in that of mass production and enjoys moreover a preeminent reputation in the furnishing of mail-steamers, the making of inlaid floors and similar work. There is still a demand for a few special styles of furniture connected with local history; old Dutch, old Frisian and such like. The art industry has secured a kind of monopoly in this branch, which makes its influence felt in an increasing measure in our home decoration. In connection with rail- and tramways there are a great many manufacturers (40) of rolling stock, who are building up-to-date cars, suitable also for electric railways. The wooden shoe (clog) makers find their raw materials (willow- and poplar wood) in this country, and so also the hoop makers (willow wood) and the basket makers. Special mention also deserves the bamboo- and rattan furniture trade which supplies chairs and settees for the decks of British ocean steamers, and of the pitch-pine furniture (at Waddinxveen near Gouda): the reed-plaiting industry at Noordwolde and, as auxiliary branches, the billiard, brush, cork and straw-hat factories.

* * *

Amongst the 370 branches of trade, into which the Labour Administration (charged with controlling the

application of all Acts referring to industry), divides the 17 sections of Dutch industry, the earthenware trade stands first. This is the oldest and, in connection with the clay soil, a purely native industry. Brick-making already existed in the 13th century: the number of brickworks is about 300 with about 12 000 workmen: in normal times they are capable of producing about a thousand million bricks per annum. These are disposed of even in America. Other branches of this trade are the pan-bakeries, the potteries, and tile-making. The last named are divided into the production of common earthenware for daily use and the manufacture of china, which is chiefly made at Maastricht, (also sanitary and fireproof earthenware), and into the art earthenware (Dutch pottery), which by new methods of manufacture and in adopting artistic designs keeps up its historic fame. Of international renown in this connection is the Delft faience industry, mostly owing to the manufacture of wall- and decorative tiles, the use of which in large modern or public buildings is greatly on the increase. The pipe manufacturers of Gouda have lost much of their business through the changed forms of smoking. Gas-pipes and cement are chiefly made in Limburg.

* * *

The glass industry also is of very old date: window-glass was made in Holland as early as 1630, and the oldest bottle works (Delft) date from 1723. White glass- and crystal manufacturing which has strongly developed has its centre at Leerdam and Maastricht. At Leerdam the production of beautiful glass-ware on a large scale is carried on with great success. Up-to-date bottle works (using the Owen machine) are found at Schiedam and Delft; they manufacture about 2000 different shapes.

Although reference has already been made under metal industry to the manufacture of incandescent lamps, we may mention here that these are chiefly established at Eindhoven on a large scale, PHILIPS having built his own glass works for that purpose. Table glass-ware is likewise made here. Mirror glass is made at Sas van Gent. Mica glass is made according to a process of recent date and is much employed in large buildings. The making of glass-ware on a large scale includes the making of jars for packing preserves and similar goods. Special treatment of glass is carried on in a variety of ways: we may mention here glass etching and grinding, milk glass, marble glass, frosted glass, glass roof-tiles etc. Very advanced is the making of burnt glass windows (glass in lead or in copper), of which many cathedrals in Holland contain magnificent specimens and for which artists of repute (SCHOUTEN, ROLAND HOLST, DERKINDEREN) have furnished designs.

* * *

The paper trade obtains its raw materials (timber and wood cellulose), chiefly from the Scandinavian countries. The 24 paper works (employing 46 000 men) produce over 100 000 tons annually; since 1921 their output has doubled. This branch of industry has its centre at Velsen and on the Veluwe. The newest factory, operating since 1927, (at Veendam) manufactures straw-paper from cellulose, obtained from straw, found in abundance in the Groningen Peat district, and is the only factory as yet in operation. All paperworks have a large export trade. Straw-board is made in 20 factories, which, given a normal crop, turn about 225 million kilos of straw into 175 kilos of straw-board, mostly for export.

In connection with the use to which paper is put,

mention may briefly be made here of a very widely extended graphic industry, comprising about 1350 printing works, of which especially those printing scientific literature and illustrations have gained a reputation reaching far beyond the frontiers. In the country of Laurens Jansz Coster this is perhaps to be expected.

* * *

The leather and shoe industry has its chief centre in North Brabant, where likewise its famous product the Brabant shoes and boots, originated. The occurrence of oak bark and pure tan-liquor in North Brabant was the reason that in former times this branch of industry was almost exclusively settled in the Langstraat, a series of villages between 's Hertogenbosch and Geertruidenberg, and so it has largely remained. The retail trade of the tanneries and shoe factories however, has had to give way to the large factories, of which there are many in that district. Altogether Holland numbers 200 shoe factories, producing annually about 8 million pairs and employing nearly 10 000 men. They are made by the most up-to-date American machinery and exported on a large scale.

The leather industry also includes works manufacturing driving belts, saddlery and harnesses, leather goods etc., of which the driving belts find their way as far as British India and South America.

As the leather trade now has a competitor in the rubber trade we may point out in this connection the nine rubber-works, mostly large businesses, manufacturing motor- and cycle tyres, insulating material, india-rubber goods, rubber tiles, medical rubber goods, etc., and which procure their raw materials, for the greater part, from Sumatra. The production has a value of 32 million florins per annum.

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The chemical industry with its many different trades (to be divided into 45 groups) can only be briefly referred to here.

It is only dependent to a small extent on native raw materials and consequently does not bear a national character. Amongst the principal sections there may be mentioned the pharmaceutical industry (Meppel, Zeist, Amsterdam): the soap works (60, with an annual output of 75 million kgs): the oil crushing mills (60): the pencil-, ink- and glue works, the match factories: the manufacture of sulphuric acid, etheric oils, perfumery, disinfectants and explosives, chlorine, stearine, glycerine, nitric acid, etc., these products being made in factories furnished with the latest improvements and shipped to many countries. We must also make special mention of the trade in fertilizers, of great importance to a country, which occupies a third place in the world's consumption of this article. Sixteen factories are occupied with its manufacture, which annually procure about 1 000 000 tons of raw materials from abroad. One of them works on a co-operative basis and produces 200 000 tons of superphosphate per annum. The making of synthetic nitrogen is now undertaken by three factories: being located at Heerlen (Limburg mines), at Velsen (Blast Furnaces) and at Sluiskil.

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Quite a separate, strictly local industry, sometimes prosperous and sometimes the reverse, is the diamond industry at Amsterdam. It consists of about 275 diamond cutting works, 70 of which are worked by electric power: the main industry being carried on in 10 factories, whose staff in normal times numbers about 10 000 men. This industry, is known to be world-renowned, on account

of so many famous stones, such as the Cullinan, the Koh-i-noor, the Victoria- and the Excelsior having been cut at Amsterdam. Very little of the products of the industry remains in the country; they are mostly exported to North America.

Not any more than for diamond cutting does the soil of Holland furnish raw materials for the gold- and silversmith trade, which is carried on in some 350 retail businesses and four large factories. The gold- and silver works established at Schoonhoven and the making of old silver (Zaan silver and Zeeland buttons) are special sections of this industry, which is also represented at Amsterdam in the setting of precious stones, the manufacture of gold chains and of platinum goods. As a substitute for silver, Gero silver is much sought after; it is exported, amongst other places, to the tropics.

To furnish information to industry, in so far as its technical and chemical equipment is concerned (in the Chapter on "Trade and Commerce" the provisions for safeguarding trading- and export interests are described) the Government has appointed three industrial representatives, whilst at Delft it has established a Government industrial laboratory, as well as Government information office for the fibre, rubber, leather and peat industries. For the protection of industrial property the Board for the protection of patents has been established at The Hague, where there is also an Office for factory- and trade-marks, (the last named for giving effect to the provisions of the Marks Act), whilst the Bureau for inventors (also at The Hague), examines the value of inventions for the purposes of the Patents Act. Between the Government and the industries stands the Industrial Council, a body appointed by Royal Decree from amongst the employers' organisations for the purpose of furnishing information and advice. Of such organisations the Dutch

Employers' Union (offices at The Hague) is the principal one. The propaganda for the use of Dutch industrial products within the country is conducted by the Association "Nederlandsch Fabrikaat" and is assisted also by the Government Commission for the extension of labour.



CHAPTER XVIII.

FISHERIES.

With its long coast-line, large inland sea, numerous inland waterways and rivers the Netherlands naturally possess a considerable source of income in the fishing industry. About 20 000 persons are directly dependent on it for a livelihood, whilst the subsidiary industries such as sail-making, roperies, net-making, cooperage, etc. run many factories and work-shops. The fishing-fleet which provides work for many shipbuilding and repair yards, consists of over 5100 ships of a total gross tonnage amounting to 349 000 cubic meters. Of these 271 are steamships, 855 motor-boats, 1684 sailing-vessels and 2298 smaller vessels.

The total quantity of fish, shell-fish and molluscs, caught by Dutch fishermen in deep-sea and coast-fishing, in so far as they were landed in this country and including the catch of migratory fish in the rivers, in 1929 amounted to 221 000 000 kg, of a value of 37.9 million florins. In addition to this Dutch fishermen sold in England 615 000 kg more. The extent of the fresh water fisheries may be judged from the number of fishing and angling permits, which were 37 750 in the season 1928/29.

The principal branch of the deep-sea fishing is the drift-net herring fishing, which is carried on in the North-sea and the Channel to very near the English coast: herring is also the chief item on the export list. In 1929, including the \pm 80 million kg of herrings were caught in nets including what was imported by foreign fishermen, landings and 72 million kg (gross) were exported, including herring from the Zuiderzee. The chief export was to Germany, Belgium and the

United States. Most of the herrings are gutted and cured on board (the pickled herring). If there is not time enough for gutting (if the catch is too big) the herrings are only salted before landing (so called "steurharing"). The greater part of these steurherrings is afterwards gutted on shore and another part is used for the preparation of smoked herring (bokking). "Steurharing" caught a short time before reaching the port is first class material for smoking purposes. Fresh herring caught in the trawl are (in general) exported for canning purposes, are used for immediate consumption and sometimes for smoking purposes.

The Dutch herrings own their superior quality principally to the fact that they are immediately gutted and cured after being caught and are then packed into barrels; on being landed on the quay these barrels are filled up to make so-called packed barrels, as herrings shrink through liquids being produced by the influence of brine.

As a rule however the herrings after being sorted are repacked in barrels for export, containing a legally prescribed minimum weight of herrings.

These herrings will remain in a good condition for a few years and are therefore eminently suitable for export.

In order to preserve the reputation of the Dutch herrings, which after the war was threatened by strong competition, the Government took measures to enable energetic action against abuses of the trade. These measures are embodied in the "Herring Act 1927". The provisions of this Act have to guarantee foreign buyers who purchase herrings in the Netherlands, that such herrings are delivered in barrels of legally fixed measurements and contain a legally prescribed minimum weight of herrings. The Herring Act also affords foreign buyers the opportunity, under the necessary guarantees, to obtain from the Dutch herring trade pickled herring

warranted "Dutch", that is to say well sorted, sound herring, being exclusively the produce of Dutch fisheries gutted alive and cured at sea.

The Act prescribes that the exporter must use barrels which answer the necessary requirements and that he is responsible for the prescribed minimum weight of herrings in such barrels, as well as if the orange coloured paper mark is affixed to the barrel, for the kind and quality of the herrings packed in these barrels; in default of the due fulfilment of these prescriptions, the exporter is liable to prosecution.

The task of the State is limited to the control of the due observance of these regulations by the examination of all herrings intended for export.

In order to be passed for export, the barrels must bear a stamp this being: a claret-coloured mark, which guarantees the form and dimensions of the barrel, as well as the minimum weight. Besides the above mentioned stamped mark an orangecoloured paper mark may also be affixed to a barrel in which herring is packed for export.

This mark indicates:

a. the year of the harvest from which the herring packed in the barrel is derived;

b. that in the barrel is packed whole (undamaged) herring, derived from the Netherlands Fisheries and gutted alive at sea, consisting of either "maatjes", "zomer" (summer) "volle" (fulls) or "ijle" (empty) herring.

Herring gutted on shore or dead at sea may under no circumstances be sent under the orange mark.

The duties of the Dutch Herring control, which is established at The Hague, are performed by a Chief Controller and six assistant Controllers. The control consists in the first place in the taking of samples of lots which, duly marked, have been presented for export or

ready for shipment. The Custom- and Excise officers also superintend the export of pickled herring.

A second branch of sea fishing is the Trawl-fishing by which herring is also caught to a small extent, but chiefly other kinds of fish such as plaice, haddock and cod, landed principally at IJmuiden from the North Sea and sometimes from the White Sea and from the waters near Ireland and Faroe.

In 1929, including the landings by foreign fishermen ± 49.6 million kg of trawlfish(net) were landed. From this quantity ± 38 million kg were caught by 202 Dutch steam trawlers.

Most of the trawl fish is exported, the export of wetfish (except herring) from the sea-fishery being for the year 1929 ± 30 million kg (gross). The chief export was to Belgium, Germany, France and Great-Britain.

Line fishing is exclusively carried on by steamships and yields mostly haddock, skate, rays and cod; the catch thereof is however of little value compared with the other fishing methods mentioned before.

Coastfishing comprises the fishing in the territorial waters, estuaries, open harbours, the Zuiderzee, the Dollard, the South Holland and Zeeland streams, the Lauwerzee and the Waddenzee. The total catch in 1929 amounted to over 100 million kg of fish, crustaceans and testaceans of a value of 8.1 million florins. The catches vary considerably and consist chiefly of Zuiderzee herrings, anchovies, eels, smelts, shrimps, oysters and mussels. The Zuiderzee herrings, the so-called "Y red herrings", are lightly smoked and baked ready or use. Of the Zuiderzee herrings a considerable quantity is exported to Germany and Belgium and is also intended as hard red herring for direct consumption. Anchovies are put on the market exclusively in a salted state and are superior to those of other countries in flavour and

durability. The longer they are kept, the more the quality improves; if intended for consumption they must be kept for at least a year. The barrels with anchovy controlled under Government supervision and intended for export are sealed with marks furnished by the Government. Salters and the merchants themselves have in connection therewith established an Anchovies Control Association.

Special mention should be made of the oyster and mussel beds in the Zeeland inland waters. The catch of oysters (in 1929 1 663 000 kg valued at 2.5 million florins) and of mussels (36.5 million kg valued at f 852 000) mostly goes abroad. In the above year 1 870 000 kg gross oysters and 33 230 000 kg gross mussels were exported, the oysters for the most part to England. The sale of oysters is carried on partly by the Cooperative Society "The Central Oyster Marketing Bureau".

For the scientific guidance of the fisheries there are two State Institutions: the State Institute for chemical, micro-biological and hydrographical research and the State Institute for biological fishery research, which is divided into three departments: for the sea fisheries there is an office at The Hague; for the coast fisheries at Amsterdam and for the inland fisheries at Gouda. In addition to these there exists a Fisheries Experimental Station at Utrecht, which receives a State subsidy.

The Netherlands being intersected by large lakes, rivers and canals, possesses fresh water fisheries as a matter of course, in which many amateurs (\pm 37 000), but also (\pm 5000) professional fishermen participate. The last named have a union of their own, which as the "Chief Section Fresh Water Fisheries", forms part of the Dutch Heath Society, whilst the sale is partly in the hands of the Cooperative Union of Fish Marketing Associations. The Heath Society has done a lot of work for the establishment and maintenance of the fishing

industry in the rivers, more especially by the distribution of young fry and by artificial breeding. It disposes of ± 170 ha of breeding ponds in which chiefly carp, tench, trout, pike, gilthead etc. are hatched, partly for the account of the Government. In its hatcheries, salmon, gilthead, trout and pike are bred. In 1929, 2 800 000 salmon fry were placed in the Rhine (for Dutch account) and in the Meuse 138 500.

The salmon fishing industry, which in the Netherlands left much to be desired in former times, and which in 1923 had reached its lowest ebb with catch of a little over 6500, is now the object of particular care of the "Fisheries" Division of the Department of Home Affairs and Agriculture. The continual decline in natural breeding, as a result of the gradual industrialization of the Rhine and Meuse littorals, has led to artificial breeding being vigorously taken in hand. Since 1922 the placing of salmon fry (for Dutch account) has been continually and systematically pursued in the most favourable breeding grounds viz. the brooks of the Black Forest, the Moselle littoral in Luxemburg and the adjoining portion of Belgium as well as in the Upper stream littoral of the Rhine in Switzerland. In this way the Netherlands and other countries have put out a total of ± 41 million young salmon fry in the years from 1922—1929. The results thereof have been manifest; the salmon catches, after the above mentioned lowest figure, have since increased to 14 586 fish in 1925, 25 565 in 1927, 14 854 in 1928 and 9658 in 1929. A comparison of the salmon fry put out and the salmon caught in the first three years, clearly shows the change which has taken place:

in 1922	1 237 180	put out	whereof	caught	3 071
„ 1923	7 575 100	„	„	„	25 450
„ 1924	3 634 800	„	„	„	14 453.

These results prove that in the near future the salmon industry will be practically dependent on artificial cultivation. All efforts are therefore now concentrated thereon and since 1921 it has been carried on in conformity with the newest natural gravel method, which shows better results than the maturing in hatching tanks.

Besides salmon, the river and inland fisheries also produce eels, smelts and pike. Of the fresh water fish also, by far the greater part is exported, chiefly to adjoining countries.

For the export of fish, landed from the sea, the State fishing harbour industry possesses extensive premises for holding auctions, packing and forwarding fish at Ymuiden. Many special trains daily run with fish loads direct to Germany, Belgium and France.

Classified according to countries, the gross exportation of fish (all kinds) in 1929 was as follows: to Germany 70 million kg, to Belgium 57 million kg, to England 10 million kg, to France 13 million kg, to the United States 7 million kg and other small quantities to the Dutch East Indies (to which already live trout have been shipped), Norway, Sweden and Poland. The total weight exported was \pm 169 million kg, which is therefore about $\frac{2}{3}$ of the weight of the whole catch, but represents about $\frac{4}{5}$ of the value thereof. Fish is imported into Holland to a limited extent and is equal in weight to about $\frac{1}{7}$, and in value to $\frac{1}{4}$ of the export.



CHAPTER XIX.

THE MINING INDUSTRY.

The soil of the Netherlands is poor in minerals; in the South and South-East of the country however the exploitation of coal basins in South Limburg, and that of salt basins in the Eastern parts of Gelderland and in Overijssel has assumed such proportions that it has given rise to a flourishing mining industry which promises to satisfy the requirements of the population, at no very distant period.

As regards coal, the annual output nearly approximates now to the home consumption; the salt output covers about half of the consumption, but will be considerably increased before long as a result of the salt-layer borings near Boekel. Both the coal-seams found in the Limburg and Gelderland soil and the salt-layers in Gelderland and Overijssel, if worked as they are at present, will satisfy requirements for an indefinite period. The exploitation of a new coal-seam has been started at Groenlo (in Gelderland).

The working of the Limburg coal basin is of comparatively recent date. The good qualities of that coal had indeed been known for centuries, but a systematic exploitation was only started in this century; at the end of 1900 the three then existing pits produced barely 300 000 tons of coal whereas the present output of four State and seven private pits exceeds 11 ½ million tons. The coal mined in Limburg is for the greater part rich bituminous coal (containing more than 20 % gas) and semi-hard coal (containing 10—15 % gas); further hard coal, with 10 %, and bituminous coal with 15—20 % of gas.

The exploitation of the Limburg mines is now carried on chiefly by the State, but private pits also have a considerable output. The Government exploitation began in 1901, when an area of 16 400 ha was reserved for that purpose, an area which has been gradually extended and now covers 27 200 ha to which also belongs a coal-field at Vlodrop (near Roermond), where a new pit has been opened.

Reviewing the mines in chronological order since the commencement of exploitation, we find that the Domanial mine is the oldest, being a continuation of the coal-diggings started in 1113 by the abbot of Rolduc and was entrusted to the management of the Aix-la-Chapelle—Maastricht Railway Company in 1846. The Willem-Sophia pit of the Dutch Coal Company dates from 1876, but not until 1902 it began to produce considerable quantities. Then the Laura Association pit was opened in 1876. This company opened another pit named Juliana in 1929. This is the latest pit where work has been started. In 1879 the Orange-Nassau pit II was opened; in 1893 operations began in the Orange-Nassau pits I and III; Orange-Nassau IV dates from 1926.

The exploitation of the State mines began with the Wilhelmina pit in 1909; in 1915 the Emma pit was opened, in 1918 the Hendrik pit and in 1926 the Maurits pit. The total number of persons engaged in the mining industry is $\pm 35\ 600$, of whom 25 000 work underground and 10 600 above ground. A sum of ± 50 million guilders is annually spent in wages.

The produce of the Limburg mines is not entirely consumed at home; there is a considerable export thereof although a still larger amount of coal must be imported. As against the 11 $\frac{1}{2}$ million tons of coal produced in the whole mining area of the Netherlands, only 1 $\frac{1}{2}$ million tons were imported, so that there were 13 million tons

available for home consumption. Of this quantity more than 50 % was used for industrial purposes, 17 % for domestic consumption and 16 % for gas factories and electrical works; another 16 % for the bunkering of Dutch ships and by railways. Limburg coal is chiefly exported to France and Belgium; coal imports into the Netherlands chiefly come from Germany and in a smaller measure from England.

The exploitation of brown coal (lignite) was energetically pursued during the War, since then it has declined, amounting only to 50 000 tons in 1929. As the existing seam will be exhausted, before very long, the exploitation will finally be abandoned.

The organization of the State mines, of which the Head Office is at Heerlen, has gradually developed into a complex of industries and auxiliary industries, which are not only equipped in an up-to-date style, but are already yielding considerable profits. Large extensions of the works e. g. have been paid for out of the surplus working profits: the capital with the State mines are operating, has not been increased since 1921. The profits of the last few years vary from 3 to 4 %.

The above extensions are more especially due to the increase of the coke-oven industry, which now disposes of 6000 tons of coal a day. The Government mines also furnish electric current for the province of Limburg, while contracts have been made for the supply of gas to the towns of Maastricht, Roermond, Venlo and Eindhoven. A factory also has been erected for the production of synthetic ammonia. Finally the Government mines furnish various by-products, such as tar-oil, benzol, toluol and others. For the sale of coal, coke and briquettes a sales bureau has been established at The Hague; the sale of by-products is undertaken by the commercial department at Heerlen.

The State mines operate brick works for their own requirements; this being an annular kiln which annually produces from 6 to 7 million bricks; they also work sand and gravel pits.

The very nature of mining necessitates comprehensive provisions, in respect of housing, safety and other social requirements. In spite of the sharp decline in the average proceeds of the sale of coal (from f 33.45 per ton in 1920 to f 8.84 in 1928) successful efforts have been made to prevent wages from dropping at a more rapid rate. Large sums are paid by the State mines for the social welfare of their staff: the annual costs thereof for each workman are: for social insurance \pm f 155, for accident insurance over f 55, for coal supply over f 12. Other regular contributions are given by the State mines on behalf of church building, Roman Catholic and Protestant Homes or Societies; there also exist for the benefit of the staff, cooperative shops, opportunities for recreation etc., all jointly financed by the "Social institutions fund". With regard to housing the State mines have at their disposal \pm 2400 workmen's dwellings and 400 houses for officials; others are erected in cooperation with building societies, bringing the total up to \pm 4500 available habitations. Questions regarding wages and conditions of labour are settled (jointly with the private mines) by a Labour Agreement Commission which has been at work since 1917. There also exists an arbitration court and committees have been appointed for the settlement of disputes. The labour committees are performing useful work in dealing with matters exclusively concerned with the State mines.

The Government control of the mines (including the private ones) is exercised by the chief mining engineer who has to see that the mining regulations are duly kept, and whose office is at Maastricht. His decisions

are open to appeal at the court of appeal for the mining industry. The chief engineer is assisted by the Inspector of labour, whose exercises supervision underground as regards the observance of the mining regulations. The Mines Council is an advisory body to assist the Minister of Waterstaat, who has also the mining industry in his charge. This Council also advises the Directorate of the Government mines which consists of three members.

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The salt mining industry dates from 1919 and is therefor only ten years old. The State mineral prospecting service whose surveys also include this part of the mining industry, had discovered the presence of salt in the soil of Gelderland; this salt appeared to be already in a state of solution, salina's were consequently the indicated form of exploitation. In 1918, by virtue of an agreement based on an act of the 18th June 1918, the State transferred its rights concerning the working of a salt mine at Buurse (near Hengelo) to the Royal Dutch Salt Industry. This transfer had reference to an area of 3030 ha. Already in 1919 work had been started and in 1920 the capacity has been increased to an annual output of 25 000 tons of refined salt. It now amounts to 40 000 tons and on completion of the extension work now in course of construction, the output will amount to 55 000 tons annually. Meanwhile a fresh salt layer of an average thickness of 40 m has been bored, in consequence whereof the yield may before long be further considerably increased. The quantity of salt expected to be found in the Gelderland soil is estimated at 22 milliards of tons; it contains hardly any potasch (0.5 %).

The salt layers at Buurse, which are found at a depth of between 300 and 400 m and are from 60 to 70 m

thick, are worked by means of the evacuation process. Through the pressure of water forced into the salt layers the brine rises to the surface and is there conveyed to the factory through a 2 ½ km long pipe-installation. The tanks erected there, each of 230 cubic meters capacity, are under the supervision of excise officers, as for every 100 kg of salt an excise duty of f 3 has to be paid. After purification the brine is evaporated and is then stored for a few weeks in silos until fit for consumption. In addition to fine (table) salt the Royal Dutch Salt Industry also produces the so called Zozo.

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Mining in the Netherlands also includes the quarry industry, consisting of the working of lime clay (marl) deposits, which are only found in South Limburg. The blocks seve for building purposes, the lumps for making mortar. After flourishing temporarily during and immediately after the war years, this industry was again reduced to the very modest dimensions of pre-war time.

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As indirectly connected with fuel digging, reference may here be made to peat cutting which has its centre in Drente and of which the so called long peat, cut on the fens situated at a high level, is used for brickworks, paper-, strawboard- and potatoflour factories. The short peat from the low lying fens is chiefly employed for domestic heating purposes.

Besides the ± 10 000 ha of high level fens in various provinces, Drente possesses further ± 15 000 ha of uncut high level fen, which is estimated to yield 70 million cubic meters equal to 17.7 million cubic meters dry factory peat.

The peat obtained in Drente, which is cut by hand (mechanical peatcutting not having yet proved to be very succesful) is used for the greater part for home consumption, but is also exported in large quantities. This export takes place principally in the form of moss-litter, which is of interest to horticulture and, when mixed with molasses, has been found to be excellent cattle fodder.

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With a view to the desirability of exercising the strictest economy in the use of fuel, the Institute for Fuel Economy was established by Royal Decree in 1920.



CHAPTER XX.

TRADE AND COMMERCE.

In conformity with the organisation of Dutch industrial life, as well as with the nature of the produce both above and below ground, the foreign trade of the country on the one hand shows abundance, on the other a scarcity of certain goods. While the Netherlands have an abundance of horticultural produce and manufactured goods, for a number of raw materials, articles of food and partly manufactured goods they are depended on foreign supplies and, to a large extent, on the produce on their overseas territories. The pinching shortage of food during the war 1914—1918 has sufficiently proved this. The above features therefore largely govern the character of the import and export trade; as against the value of foodstuffs, exported in 1929 which amounted to \pm fl. 735 mill., the import value of the same class of goods was only fl. 590 mill. As regards manufactured goods, the value of the imports amounted to over fl. 1160 mill., while that of the exports was fl. 870 mill. The difference appears stronger still in the case of raw and partly manufactured articles the import value of which in the above year was exactly three times that of the export value.

Dutch foreign trade has always shown an adverse balance. In 1929, 73.6 % of the imports were covered by the exports. This percentage however, has regularly increased in recent years. In the years from 1923 till 1928, it was 64.9 %, 70.3 %, 73.6 %, 71.2 %, 74.6 % and 74.0 %, respectively. This movement is in so far remarkable, as it occurred in a period which cannot be said to have been favourable to the preservation and extension of foreign trade, espacially in the case of a

country whose export trade had always been rather considerable. Between 1922 and 1928 the export value per head of the population rose from f 170 to f 261, which is all the more noticeable as the population is also rapidly increasing.

Another feature of Dutch foreign trade is that it is chiefly carried on with countries which are the near neighbours of Holland. The chief countries from which we import goods are also our principal customers. Of the total import value (2726 million florins) in 1928, goods at the value of 1403 million came from Germany, Belgium, England and France, whilst of the total export value (1994 million) 1194 million worth of goods were sent to the above countries.

In addition to these four the United States and the Dutch East Indies constitute our principal trade connections; the six countries represent together 67.4 % of the import and 72.4 % of the export value. On a still closer examination of trade statistics it appears that our relations with Germany and Great Britain, both as regards imports and exports, are the most important; of the total imports they send us about 36 %; of the exports they receive about 45 %.

The proportion of the weight of imports to that of exports is nearly as 37 : 19.

A table of the groups of imported and exported articles during 1928 shows the trend of foreign trade:

Value in thousands of florins.

Groups of articles	Import	Export
1. Live stock and animal products	90 627	499 740
2. Vegetable produce	672 781	270 857

Groups of articles	Import	Export
3. Minerals, metals and manufactures thereof not included in other groups..	538 980	201 689
4. Flour and flour products	40 510	52 060
5. Chemical products, medicines, paints and colouring materials	68 849	56 568
6. Oils, resin, gum, ointment, pitch, tar, wax and manufactures thereof.....	162 917	165 393
7. Timber and manufactures thereof and similar products, furniture.....	176 915	15 903
8. Hides, skins, leather, leather work and footwear	71 708	56 053
9. Yarns, rope and rope-work, tissues and cloths, wearing apparel and articles of fashion	319 962	228 756
10. Earthenware, china, bricks and other artificial stone.	23 447	13 359
11. Glassware.....	19 938	8 892
12. Paper.....	45 225	49 154
13. Food and drinks not mentioned in groups 1, 2, 4 and 6.....	154 090	105 543
14. Carriages, vehicles, vessels and flying machines.....	86 802	57 184
15. All other goods	279 540	208 332
Total.....	2 752 297	1 989 490

A closer inspection of the nature of the articles imported into Holland, shows that they principally consist of ores, grain, tropical foodstuffs, condiments and oils. In many cases these articles form part of the very considerable transit trade, by which we are reminded of the ports of Rotterdam and Amsterdam, excellently equipped for that purpose.

The transit trade in foreign ores many kinds of which are shipped from the adjoining Rhenish- Westphalian district has its centre in the transit harbours of Rotterdam and Amsterdam. Rotterdam in this respect occupies the first rank among all harbours of the world. Large enterprises in that city are even working mines in other countries. Iron ore occupies the first place, and pyrites, manganese and aluminium ores are also imported.

A very important article of trade is the foreign grain, 90 % of which is imported via Rotterdam. Native grain is dealt in at Rotterdam and Amsterdam, while the corn exchanges of Groningen, Leeuwarden, etc., also deal in foreign grain. The character of the grain trade in the harbour towns, has gradually changed from an intermediate into a transit-trade, in connection with which many floating elevators are available for transshipment. The German-Dutch grain contract has for its object the prevention of malpractices on the arrival, sampling and transshipment of grain at Rotterdam. The quarterly market in grain has become of great importance; in this respect Rotterdam is the largest market in the world for maize and the only one on the continent of Europa.

In connection with the grain trade, the trade in oleaginous seeds deserves mention, of which Dutch seeds also form part viz., linseed, hemp seed, rape (colza) and poppyseed.

As a matter of course the Netherlands import tropical produce to a large extent from their own overseas terri-

tories; thus (in 1928) 42 % of coffee, 80 % of copra, 45 % of tobacco and 75 % of thea came from those parts. The volume of such imports however is greatly exceeded by those of the transit-trade, which has given a great reputation to Amsterdam especially as tobacco and coffee market. The export of e.g. c o f f e e from Holland in 1928/29 was larger than that from any other European country. Only 550 000 of the 2 298 000 bales imported were intended for home consumption. Moreover large quantities are shipped from our ports direct to other harbours.

In the t e a market, also established at Amsterdam, fortnightly public sales have been held since 1929.

Of great importance are the Amsterdam t o b a c c o auctions, which belong to the most important international markets. Trade in futures is not carried on here, sales follow upon bids. The transactions are very large and are made in Dutch East Indian as well as American tobaccos.. The Netherlands themselves consume much tobacco; in 1928 the value of the home consumption of cigars, cigarettes and tobacco amounted to 162 million florins. A notable trade, chiefly fed by the Dutch East-Indies, is that in c o p r a; the centres of which are at Rotterdam and Amsterdam. This article is also imported from Polynesia.

Both Amsterdam and Rotterdam carry on a considerable business in S o u t h e r n f r u i t s, for which purpose warehouses with cold storage and other up-to-date equipment have been built..

Of the world production of c o c o a b e a n s Holland imports more than 1/10. The Java cocoa bean is shipped direct to the mother-country and sold at Amsterdam by public auction and at Rotterdam by tender. By far the largest quantity of cocoa beans comes from British West-Africa (Goldcoast). For c o c o a b u t t e r Amster-

dam is also principal market; the produce of VAN HOUTEN is sold by monthly auctions.

As the production of timber in Holland is insufficient to meet the home demand, a considerable trade in imported timber has developed, of which Amsterdam is the centre, and in connection with which Amsterdam, Zaan-dam, Delfzijl and Dordrecht possess special timber harbours. Supplies are derived mainly from Sweden, Finland, Russia, Poland and Letland and to a smaller extent from down the Rhine. From Java finer qualities are obtained (djati- or teak-wood).

The trade in hides is carried on by a central association, "The Netherlands Hide- and Leather Exchanges", which owns an up-to-date warehouse at Rotterdam. The imports consist of exotic (also East Indian) hides, both dried and cured. The trade in chinchona bark, quinine and coca has its centre at Amsterdam, where also the quinine factory is established, which together with the factory at Maarssen (Utrecht) and that at Bandoeng (Java), has almost the exclusive control of the world market. For oils and tallow s, Rotterdam is the chief market, this city being likewise the centre of the margarine industry, which exercises a strong influence on this market.

For the import of petrol, benzine and similar products, extensive installations have been provided at Amsterdam, Rotterdam, Vlaardingen and Pernis. In connection with this trade, reference should be made to the Royal Dutch Petroleum Company which is one of the leading enterprises in the international petroleum industry. It has its offices at The Hague and operates with a capital of 600 million florins. The company's tank installations at Rotterdam have a capacity of 74 000 tons. The rubber trade receives its largest supplies from the Dutch overseas territories (Sumatra and Java) and

is carried on both by tender and on the quarterly market (at Amsterdam). The s p i c e trade likewise derives its imports to a large extent from the Dutch East-Indies. An extensive business is done in spice in the quarterly market, both at Amsterdam and Rotterdam, where the large warehousing companies are able to store this produce, free from deterioration.

The Dutch s u g a r market, deals with a twofold product viz. the cane sugar (from Java and Cuba) and the beet sugar from its own soil. The chief seat of the sugar trade is at Amsterdam. In relation to the fact, that the Dutch East-Indies (Banka, Billiton and Riouw) supply 1/5 part of the world production of t i n, the Netherlands have an important tin trade. The sales however take place at Batavia.

Amongst soft goods, c o t t o n occupies a foremost place. Rotterdam has not only a very important cotton exchange but admirably equipped cotton warehousing companies. Most of the imports come from North America and British India. Rotterdam is affiliated to the International Cotton Association, its quotations being therefore acknowledged in the large centres of the cotton trade. The W o o l trade consists chiefly of foreign wool; notwithstanding this, the recently established Central Bureau for Sheep-breeding and the Netherlands Federation for the improvement of the wool trade, are making efforts to encourage wool production on Dutch soil. The k a p o k trade is dependent mainly on imports from the Dutch East-Indies and is carried on by tender at Amsterdam.

* * *

As regards e x p o r t, an enumeration of the principal articles of export will suffice. These are found in the first place in agricultural and dairy produce, fish, live stock

and fresh meat, further cured meat (pigs), margarine, eggs, condensed milk, in short an extensive number of those products, with which the Netherlands largely cover their imports. In addition a large export trade is carried on in the most diverse industrial products: electric glow lamps, artificial silk, cotton goods, coal (also bunker coal), electrical apparatus, oils and greases, straw boards, potato flour, cleaned rice, cigars, chemicals, etc. etc. Amongst larger finished products bridges should be specially mentioned here, as they are much in demand abroad; further dredgers, tin mills, ships, locomotives, organs, factory plant, aeroplanes, motor engines, etc. Further particulars on this subject will be found in the chapter on "Industry".

Of the raw materials imported from the Dutch East-Indies and other countries, a large portion is also sent abroad as finished articles. In the trade between the Dutch East-Indies and the motherland the first and most influential place is occupied by the Netherlands Trading Company (Amsterdam), which is directly interested in sugar factories and is in connection with 24 factories of third parties and five tobacco companies in Sumatra.

* * *

Finally mention must be made of an extensive range of Government and private institutions for the promotion and guidance of our foreign trade. Both the Department of Foreign Affairs (with the Section for Economic Affairs) and that of Labour, Commerce and Industry with the section of Commerce and Industry, where an Economic Library and Reading-Room is to be found, and the Foreign Agricultural Information Service, coming under the Department of Home Affairs and Agriculture, furnish

in this respect all the required information. The Department of Labour, Commerce and Industry has also under its jurisdiction the institute of the Chambers of Commerce, some 36 in number, which amongst other duties keep up to date the Trade Registers (instituted by an Act of 1918) and one charged with the application of the Trade Marks Act. The Netherlands are affiliated to the International Chamber of Commerce. Other Netherland Chambers of Commerce are established in London, Brussels, Paris, Frankfort, Cologne, Zurich, Milan, New-York, Chicago, San Francisco, Buenos-Aires, Shanghai, Pretoria and Johannesburg, whilst at Capetown a Netherland Sample Room has been opened. Combined Chambers of Commerce are the Italian-Dutch, Dutch-Mexican and Dutch-American Chambers, whilst mention must also be made of the Committee for Dutch-African Trade. At Frankfort a Dutch chair for economics and in London one for Dutch studies has been founded.

Of importance to business men is also the Section for Trade Statistics of the Central Statistical Bureau (The Hague), which section publishes monthly and without delay all data concerning imports and export, movements in bond and transits. The Central Bureau also possesses a considerable library and a reading room.

Commercial relations with overseas territories, specially with the East and West Indies, are supported by the Commercial Museum Section of the Colonial Institute (Amsterdam), which carries on a separate information service, owns a very extensive library and collects and keeps up to date actual data from all parts of the world.

The Commercial Intelligence Bureau (Amsterdam) is for purely commercial purposes a well informed address centre for overseas relations.

The Netherlands Trade Fair at Utrecht, which has now existed for ten years and is held twice a year for ten days,

appears in a growing degree to be a much appreciated market for home and foreign factories. After completion of the second permanent building in 1930, a space of 12 500 square meters will be available for exhibition purposes.

Collective contributions from various countries are regularly on view there, whilst the Colonial Institute and some foreign Governments also send their exhibits.



CHAPTER XXI.

BANKING.

Consolidation and extension — two conceptions which seem to exclude each other at first sight, but sometimes agree very well, have characterized Dutch banking, during the last years. Since the time of the deepest depression in the economic life of the Netherlands, consolidation, as far as the inner strength of the Dutch institutions is concerned, and extension, with regard to their national and international spheres of work, taking especially into account the “internationalization” of Amsterdam, as a financial centre, has been the chief occupation of our bankers.

There is an internationalization of business activities as well as of the institutions concerned. Beginning with the latter, we are reminded here of the fact that, a few years after the War, many foreign concerns were added to the native Dutch institutions, most of them, but by no means all, of German nationality. Thereafter followed the establishment of “international banks” sponsored by the Netherlands Bank, i. e. institutions founded by Dutch and foreign parties in common, sometimes many countries participating in the enterprise, which the Bank of Issue gradually put on a footing of equality with Dutch banks, with regard to the discountability of their endorsements and acceptances. The establishment of these institutions was preceded and followed by a large number of credit institutions as well as of banks, which took up the financing of certain branches of industry only, especially those of raw materials for the textile industry, and finally by numerous “trade”, “investment”, “trust” and other companies, doing business under a similar style, on a larger or smaller scale, which were all connected with

certain foreign enterprises or leading personalities abroad, and which, by creating innumerable ties, financial and otherwise, with foreign countries have greatly increased the importance of Amsterdam as an international centre.

As regards the internationalization of the work, it is difficult to say, which is of greater importance, the stock-issue activity or the acceptance business. If we start with the former, it is only because, even before the war, the business done on the Amsterdam Bourse, had an international character, so that the new wave of issues, only differs from the old one in size and composition. Although in 1929 there was a slackening of this activity, there were 72 issues amounting to f 138 100 975 and distributed over 15 countries; in 1928, however, 126 foreign issues were recorded, to the total amount of f 300 224 381, distributed over 25 countries; in 1927, 91 of such issues had amounted to as much as f 346 335 474. This, without taking into account many introductions of foreign securities on the Amsterdam Bourse, the exact amount thereof not being known. It is true, that Germany was far ahead of all the countries with regard to offering securities on which subscription was invited here; but also the United States, Belgium, France, Spain, Denmark, Great Britain, Italy and several South-American States have applied for large amounts to the Amsterdam issue market.

The international acceptance business, however, did not assume larger proportions, until after the war. The clear-sighted endeavours, on the part of some managers of Dutch banks, to secure for the Guilder acceptance, besides the Dollar and Pound acceptances, a prominent place in international transactions has been indirectly, and sometimes directly, fostered by the work of the foreign banks. Amsterdam's acceptance market has lately developed to such an extent, that after that of London

and New-York, it may be considered the most important one. Its turnover of about f 360 million amounts to more than one tenth of the New-York market.

Besides these special forms of credit, the other kinds found in trade and banking (credits in current account, with and without security, etc.), also in business with foreign countries, are all made use of. Comparatively low money rates have enabled Amsterdam of late to offer foreign countries even better conditions than places like London and New-York; but Dutch business-men have not been induced thereby to grant excessive credits abroad; they have rather adhered to the principle of a division of the risks involved. Moreover the Netherlands Bank took care, by keeping the bank rate as stable as possible and by renouncing financial advantages through quick changes of the rates, to secure for Dutch economic life comparatively constant conditions for obtaining credit. So the discount rate of $4\frac{1}{2}\%$ was in force, uninterruptedly, from the 13th of October 1927 till the 25th of March 1929, and not until the London increase of the discount and the higher New-York money rates had strongly affected the rates of foreign exchanges, the Netherlands Bank, after having used all other suitable means, decided to raise its discount to $5\frac{1}{2}\%$. After the New-York Stock Exchange crisis and in accordance with the great easiness prevailing also in the Dutch money market, the rate has been reduced to as low a level as $2\frac{1}{2}\%$, this being the lowest quotation since two decades. Whilst the increase of the discount rate was profitable for the banks, in the year 1929, 1930, is likely to have brought about smaller earnings from interests for the banks; income from commissions will, most probably, not show too important a reduction, which ought not to have been mistrusted by anybody.

Turning now our attention to the large Dutch banks,

viz. the Amsterdamsche Bank, Incasso Bank, Rotterdamsche Bankvereeniging, Twentsche Bank and Nederlandsche Handel Mij. (Netherlands Trading Society) we find that the last mentioned institution occupies in so far a somewhat particular place, as its sphere of work equally includes the Mother-country and the overseas territories as well as other regions of the Far West, which causes the structure of its balances and profit and loss accounts to differ somewhat from that of the other banks mentioned.

In comparing the balances and profits of the latter, there is to be borne in mind that most of those institutions work now under their own style in the different provinces of this country, while others have founded subsidiaries for this purpose, and that there is even a mixture of the two types.

The Rotterdamsche Bankvereeniging, for instance, had been represented in the country, up till 1929, by about 170 branches of the Nationale Bankvereeniging: since then, as a consequence of the "Natobank" having been merged with the "Robaver", the balance-sheets and the totals of Robaver's accounts have, of course undergone an important change, showing much increased figures. Other banks too, have, during the last year, taken over the business of small affiliated provincial concerns, but this will be reflected in their balance sheets to a slight degree only.

Hereunder follow a few balance figures for 1929:

	Amount of Capital	Ordinary Reserves
Nederlandsche Handel Mij.	f 80 030 000	f 40 015 000
Amsterdamsche Bank	55 000 000	48 250 000
Rotterdamsche Bankvereeni- ging	50 000 000	20 000 000
Twentsche Bank	36 000 000	15 000 000
Incasso Bank	30 000 000	8 400 000

The last mentioned bank has considerably increased its capital since 1925.

	Deposits, creditors, bills payable etc.	Cash and Call-money
Nederlandsche Handel Mij. (European Branches)....	f 335 442 000	f 10 229 000
Amsterdamsche Bank	277 823 000	18 880 000
Rotterdamsche Bankvereeniging	305 313 000	15 082 000
Twentsche Bank	281 214 000	4 620 000
Incasso Bank	107 633 000	7 483 000

	Credits held by those banks at home and abroad	Bills receivable
Nederlandsche Handel Mij.	not shown separately	f 112 197 000
Amsterdamsche Bank	f 45 567 000	88 064 000
Rotterdamsche Bankvereeniging	25 986 000	82 630 000
Twentsche Bank.....	17 512 000	38 024 000
Incasso Bank.....	6 774 000	23 799 000

	Debtors	Proportion of liquid means to liabilities
Nederlandsche Handel Mij.	f 202 800 000	no accurate comparison possible
Amsterdamsche Bank	245 302 000	55 %
Rotterdamsche Bankvereeniging	248 624 000	41 %
Twentsche Bank	158 010 000	no accurate comparison possible
Incasso Bank	110 750 000	36 %

	Gross profit	Net profit	Dividends
Nederlandsche Handel			
Mij.	f 16 883 000	f 8 655 000	10 %
Amsterdamsche Bank	19 279 000	7 672 000	9 1/2 %
Rotterdamsche Bank-			
vereniging	19 061 000	5 441 000	5 %
Twentsche Bank	11 178 000	4 288 000	7 1/2 %
Incasso Bank	7 959 000	4 214 000	7 %

If these figures are compared with those of the last years, which cannot be done here for lack of space, the impression of a strong and healthy development of the banks even in the somewhat difficult year of 1929 would be more accentuated.

Of the institutions working in the Dutch East Indies we give here at least the names and capitals of the Nederlandsch-Indische Handelsbank (capital f 55 million) and the Nederlandsch-Indische Escompto Mij. (capital f 47 million). The banking traditions of the Netherlands are centuries old, the extraordinary importance which Amsterdam has recently obtained as a financial centre, the impartial atmosphere of this country in which many hundreds of foreign institutions could resume their relations to other countries, which were broken off, during the War, Holland's insight into the international situation, her sound currency and the fact that her Issue Bank enjoys a high reputation, at home and abroad, gives our country an important position in the financial world.



CHAPTER XXII.

THE ROAD SYSTEM.

The road system in the Netherlands consisting of State-, Provincial and Municipal roads, in consequence of the demands made upon them by the rapidly increasing motor traffic, is being radically improved. This increase in the years 1916—1923 on the (84) Government highways amounted on an average to 24.5 %, in the years 1923—1926 on an average to 36.5 %. Between 1908 and 1926 the mean number of motor vehicles on the State high-roads has increased from 6.2 to 263.6, per day.

The network of Government roads, which has existed since 1813, is under the management of the Department of Waterstaat. The total length of these roads is 1941 km; in addition there are in the Netherlands 23 000 km of metalled roads, which are under the control of provinces, municipalities, polder-boards, commissions or private persons.

Considering that the area of the country is 33 270 km², the roads in the Netherlands cover about $\frac{3}{4}$ km per km², they are therefore very close together. This is especially the case in the W. and N. provinces and in South-Limburg.

Improvements in this system of roads have been made by putting into operation the Road Tax Act, in 1927, from the yield of which taxes grants have been given for the execution of the Government road plan and of eleven Provincial road schemes. The Government plan, besides the improvement of the 1941 km of existing roads, also includes the making of new high-roads which will have an additional length of 1050 km and are to connect with the others, so that the system of roads in the Netherlands will have a total length of about 3000 km.

A part of the roads will chiefly follow the track of existing ones, whilst another part will include roads of an entirely new construction. The provincial road system has a length of about 4000 km. Some of the roads will be left under the control of municipalities and polder-boards. The proportion of the money to be spent on State- and provincial plans is to be as 70 : 30 until the year 1931; 65 : 35 until 1935 and 60 : 40 after 1935.

The bicycle tax, which now amounts to fl. 2.50 for each cycle, constitutes a considerable portion of the proceeds of the Road Fund, as there are in the Netherlands nearly 2.5 million bicycles, which is equal to one per 3 inhabitants.

The need of bicycle tracks, especially in industrial districts, where, in connection with the opening and closing of factories, an intensive cycle traffic takes place at certain hours, has been adequately met, in the last few years.

The Road Tax Act further provides for the levying of an annual tax on motor-cycles of from 10 to 30 florins, according to weight, and on automobiles, motor-lorries and omnibuses of respectively 6.6 and 8 florins per 100 kg. Other revenues derived from the Road Fund are: interest, on advances from the Exchequer or loans.

The 30—40 % of the annual allowance, which are spent on the provincial roads, are divided amongst the provinces partly, according to the length of time the contemplated improvements of the roads will take, and partly according to the road tax in the province concerned.

The expenses of the road fund in 1927 amounted to approximately 15.6 million florins, in 1928 to about 26.6 million and for 1929 and 1930 are estimated at 30 million, a sum which in the coming years will probably not be

much exceeded; of this sum about 11 million are covered by the revenue from the road- and bicycle tax which is fl. 7 million and by an amount of fl. 4 million which represents contributions or advances out of the ordinary Government revenues. In addition to this, fl. 8 million will be advanced by the Exchequer.

The cost of all the improvements and new constructions on behalf of the State and the provincial road plans are provisionally estimated by the Government commission appointed to consider the transport problem, at 325 million florins. Of this sum fl. 225 million are to be spent on the State plan which includes the bridging of large rivers bridgings and fl. 100 million on the provincial road system, whilst 50 million, chiefly in the form of subsidies, will be used for roads of minor importance.

Until 1926, the annual State expenditure on behalf of road construction amounted to about 5 million florins and that of the provinces jointly to from 2.5 to 3 million florins, being therefore altogether between fls. 7.5 and 8 million. If it is considered that $\frac{3}{5}$ part thereof or approximately 4.5 million was necessary for improvements, whereas at the present time over 20 million are available for that purpose, the enormous progress will be realised, for which the Road Fund is responsible. Working at the above mentioned rate, the plans should be completed in about 15—20 years.

The abolition of tolls which are still being levied on different highways, which however are not State roads, ought soon to be an accomplished fact. Roads, on which tolls are still levied, cannot participate in any contribution from the Road Fund.

About simultaneously with the Road Tax Act, the amended Motor and Bicycle Act came into operation which has been followed by Motor- and

Bicycle Regulations. These prescribe, a division of the roads into three classes on which definite maximum speeds are allowed according to the weight of the vehicle as fixed by law. The 3rd class roads may only be used by motor vehicles up to 2.10 m width, on the other roads the maximum width allowed is 2.35 m. Agricultural machines passing along Government roads may have a width of 2.60 m.

The majority of the present State highways come within the 2nd class; 1st class roads are an exception yet and do not form a connected whole; as the improvements progress, more and more roads will be in a condition to be included in the first class.

On the map only the 3000 km of the Government road plan are indicated. This network connects the chief towns and other important provincial centres, generally of more than 20 000 inhabitants, including mining areas and sea-ports, with each other as well as with foreign road systems. A few islands of the province of Zeeland and that part thereof which lies south of the Scheldt will also be connected by ferries with the main system.

An important detail of the plan is connected with the building of the large new bridges, which to the number of 14 are to span the principal rivers Waal, Rhine, Maas and IJssel. The river communication between Germany and Rotterdam, so important to navigation, is at present only crossed by railway bridges, but not by a single bridge for ordinary traffic, which at a time of floating ice or high-tide causes great interruptions of the usual traffic between the North and South of the Netherlands.

It will be necessary also to construct various entirely new roads and important circular roads, whilst very many level railway and canal crossings will have to be replaced by bridges or tunnels.

The new roads can as a rule be constructed without difficulty at a width, required by modern traffic.

Amongst these the following may be mentioned:

1. An entirely new road from The Hague to Rotterdam, East of the now existing one which is quite inadequate. This connection will be the first to be made.

2. A short connection between Amsterdam and Rotterdam, of which the Southern portion from Rotterdam to Bodegraven will be ready sooner than the Northern. The link between the last mentioned portion and Utrecht will be established by means of road 7.

3. A shortening of the section Amsterdam—The Hague by means of a new road through the reclaimed Haarlem polder to Sassenheim.

4. A new connection between Amsterdam and the Northern part of North Holland, which will also lead to the N. W. Zuiderzee polder near Medemblik.

5. A road from Amsterdam along the North sea canal to IJmuiden.

6. Two roads, which with the enclosing dam will effect the connection of North Holland with Friesland.

7. An entirely new road section The Hague—Utrecht to take the place of the existing tortuous and closely built upon road, along the Old Rhine from Leiden to Utrecht.

8. An entirely new road from Rotterdam to the East of the country is to run through the delta land between the main river arms Rhine—Lek and Waal—Merwede, to its junction with the road Arnhem—Nijmegen.

9. Connections from The Hague and Rotterdam with the Hook of Holland, which will be of importance both to tourists and goods traffic.

10. Several new roads in Zeeland, North Brabant and Limburg and in Overijssel, Drenthe, Groningen and Friesland, which will be linked up or added in order to obtain a more closely connected and more symmetrically divided road system.

On these roads the part to be used by carriages is to have a width of at least 6 m, while the separate bicycle tracks will be between 1.5 and 2 m wide. Near the large towns the width of the part for carriages will be between 8.50 and 11 m and there will be also wider bridle- and foot-paths. In addition there will be tramway lines, conduits, and trees or hedges.

For this reason exceptional widths of from 30—50 m are required for the newly planned traffic arteries. It is often necessary with the existing road system the roads to be satisfied with less when carrying out improvements, as can only be considerably widened where the number of houses alongside of them is restricted, for which reason effective improvements can only be made by troublesome turnings. Meanwhile the widenings of carriage tracks, which are effected by the construction, if need be, of adjoining but where possible of separate bicycle tracks (e.g. behind rows of trees) may already be looked upon as a very welcome improvement. This work has been laboriously proceeded with since 1927, in conformity with the "quinquennial" working plan which must therefore be completed by the end of 1931.

In the execution thereof and of the new roads the use of bricks, flint or broken stone (resp. gravel) as material for macadamised roads, which was exclusively employed until 1924, has been almost abandoned.

About 120 km asphalt concrete, 80 km cement concrete and 60 km broken tarred stones or tarred slag have been laid down in the course of the last 4 years on Government

roads, especially where the traffic was found to be too large to allow the use of brick, gravel or broken stone.

The greater part of the existing macadamised roads have hitherto been kept in repair by the aid of a bituminous layer to prevent wear and tear, but this kind of metalling has been found too expensive to keep up with a daily traffic of over 1500 tons; therefore an asphalt concrete or a broken tarred stones or scoria deck has been preferred, and this may often be superimposed on the already existing metalling material.

The kind of metalling mostly used nowadays on Government roads is what was formerly called "bitulithic", a coarse dense asphalt concrete, consisting of broken stones, sand fine mineral filling and bitumen which have been heated in a mixing machine. This mixture is taken in special motor lorries to the place where it is wanted, spread out and rolled. It is usually finished off with a protective layer of asphalt, spread over with gravel sand or split. A fine dense asphalt concrete ("topeka") is also made and this requires no protective layer. The surface of these bituminous types of road covering is often not quite so smooth and free from undulations as that which is obtained from the use of a cement concrete metalling. The last mentioned covering has the advantage that it can be laid down without any special foundation; the material is of such cohesion and strength that when laid on a sand bed it need not be more than from 15 to 25 cm in thickness. The beton is nowadays stamped with as little water as possible, by means of air pressure stampers, which process imparts great density and renders the material better able to resist wear and tear.

The tar decks have the advantage that they may be applied cold and in varying layers: they are therefore more suitable when laid down by less expert labour, but,

on the other hand, the material will have to be of a very high quality as otherwise the road deck will fail to meet the requirements of traffic.

All materials for use on Government roadways, especially the bituminous, are tested in the Government road construction laboratory at Delft (at the head of which is the chemical engineer Dr. NELLENSTEIJN, known for his original tests made with asphalt and tar).



CHAPTER XXIII.

THE WATER-WAYS.

While the Netherlands, as regards its superficial area occupy a very modest place among the European nations, in the useful employment of its soil this country stands in their foremost rank. What was said of the soil also holds good of the waterways, both natural and artificial, of which an extensive network is available for navigation. The situation of the country is very favourable, in this respect. The Netherlands not only border on the sea which is the great highway of traffic, but they are also situated at the mouths of large rivers which constitute another kind of trade routes. Although these rivers, the Rhine, the Meuse and the Scheldt with their tributaries carry a considerable part of the inland traffic, the Government promotes without stint the improvement and the construction of canals throughout the country so that the Netherlands, compared with the adjoining countries, stand first with regard to the length of waterways.

The nearly 300 navigable rivers and canals have a total length of about 7500 km; of this 5500 km are navigable for vessels of a capacity up to 50 tons; 4300 km for vessels of a capacity up to 100 tons; 2750 km for those up to 200 tons and 2150 km for those up to 400 tons. Compared with the above 7500 km, the much larger France has 11 000 km and Germany 11 000 km of waterways, whilst Belgium with a $\pm 10\%$ larger area, has 2200 km at its disposal. It should however be borne in mind that the land traffic in Belgium is far larger; as against the 3400 km of Dutch railways Belgium possesses about 10 000 km.

The great arteries of the inland navigation in the

Netherlands are the connections of Rotterdam and Amsterdam with Germany and those of the West of the country with the Limburg mining area and Belgium. Shipping in the North of the country is connected with the ports of Delfzijl and Harlingen, that in the South West has its centre at Flushing and Terneuzen. This year the deepening of the Old Meuse has opened up a passage by sea to Dordrecht, which will be navigable for vessels of a draught up to $8\frac{1}{2}$ m.

* * *

The communication between the two largest ports and the North-Sea is formed by water-ways which will bear comparison with the best canals of the world. Between Rotterdam and the North Sea there is the New Water-way which has a length of 32 km, and which without being intercepted by any locks or bridges, may be navigated by sea-going vessels with a draught of 11 m at high tide and is brought up to 11 m at low tide; the width of the channel is 340 m on the surface and 160 m at the bottom.

The North-sea canal, which connects Amsterdam with the port of IJmuiden, has a length of 29.6 km and a depth of 12.5 m below N. A. P. (New Amsterdam water level), to be later increased to 15 m. In bottom width it is only surpassed by the Panama Canal, in width of surface it surpasses both the Suez and the Panama Canal. Ships obtain access to the North-Sea canal by means of locks of a length respectively of 119 and 225 m and a width of 18 and 25 m; this year a new lock was opened, 400 m long, 50 m wide and 15 m deep below N. A. P. This lock far surpasses that of the Panama Canal in width and could accomodate vessels up to 100 000 tons.

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The communication between Amsterdam, Rotterdam, Dordrecht and the Rhine, owing to the constant maintenance of the natural and the provision of artificial waterways, is navigable for the largest Rhine vessels. To what extent the requirements in this respect are being met, is shown by the contemplated construction of a new canal between Amsterdam and the Rhine through the Gelder Valley, by means of which a still shorter communication will be accomplished between the North-Sea and the Rhine than is now afforded by the Merwede canal. There is also in preparation the construction of a canal, which will connect the centre of the Twenthe textile industry with the Rhine, and consequently with Rotterdam, which occupies a prominent place as a cotton port. A third important improvement in navigation will be brought about by the canalization of the Meuse, more especially as regards the section Maastricht—Maasbracht, which will greatly assist in facilitating communication between the Limburg mines (and Belgium) and the North of the country

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Speaking of Dutch shipping on rivers and canals, the first place as regards facilities of transport must be accorded to the water-way from Lobith (custom-house on the German frontier) through the Waal, Merwede, Noord, New Meuse and the New Water-way to the North-sea. The largest vessels used for inland navigation, and also the small sea-going craft which proceed as far as Cologne and Frankfort, find here a channel of communication free from locks. Annually ships of a total tonnage of 75 million carrying about 40 million tons of cargo pass through the Rhine. The Dutch Rhine

fleet is composed of \pm 4000 vessels of a capacity of 2 million tons. A second water-way between Lobith and the North-sea is that which runs through the Pannerden canal, thereafter continuing in a northerly direction through the IJssel (which finds its outlet in the Zuiderzee at Kampen) and running in a westerly direction to the Lower Rhine, which from Wijk near Duurstede on is called the Lek, crosses at Vreeswijk the Merwede canal (connecting Amsterdam with Lobith and with Rotterdam), and joining the Noord, continues by way of the New Meuse and New Waterway to the North-sea via Rotterdam. The Merwede canal has a length of 72 km, the shipping movement there amounting to about 20 million tons.

The second river in point of importance for inland navigation is the Meuse, which traverses the province of Limburg throughout its whole length and reaches the large water-way to the North-sea through the Meuse-Waal canal at Nijmegen, which is only a few years old. The Meuse canalization referred to above, includes important works, the object of which is to improve the inadequate navigability of the Meuse. At the same time there has been taken in hand a considerable improvement of the water route between South-Limburg and Dordrecht—Rotterdam, as the South Willem canal, which was made previous to the separation of Holland from Belgium and now runs across Belgian territory, is only intended to water-ways accomodate vessels up to 450 tons.

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The following have now been partly finished and are partly still in the course of construction: 1st. the Wilhelmina canal, 70 km long and running from Helmond

by way of Tilburg and Geertruidenberg to the Moerdijk, navigable for vessels up to 700 tons; 2nd. the canal from Wessem to Nederweert, 16 km long and navigable for vessels up to 600 tons; this canal connects the South Willem canal with the Meuse; 3rd. the Meuse canalization from the point, where the above mentioned canal reaches the Meuse, as far as Grave (in the North of Limburg); at Grave this part of the Meuse forms a junction with the aforementioned Meuse-Waal canal, whereby the communication between Belgium, the Rhineland and the Limburg mines with the North and West of the country will then be made navigable for vessels up to 2000 tons. Finally there is the Juliana canal in course of construction between Maastricht and Wessem, forming a junction with the Wessem-Nederweert canal, which opens up a communication by way of the South Willem canal and the Wilhelmina canal with Dordrecht and Rotterdam.

From this short summary it will be clear that, on completion of the above works, the navigation facilities between the North-sea and Germany and Belgium (including the Limburg mining area) will have been greatly extended and shortened, which is of the utmost importance with regard to inland traffic for the import as well as the export trade. The tens of millions spent on the improvement and the construction of water-routes in the centre and in the East of the country, are only a continuation of the progressive course taken by the Government, which between 1880 and 1912 spent already more than 200 millions on works of such vital importance to the welfare of the population.

* * *

If the large number of the principal channels of navigation from the above description, appear to be a

natural result of the position which owing to its geographical situation our country occupies in international commerce, the same may be said of the minor water-ways, which both as to the number of ships and their capacity, are intended for a busy and widely-extended water traffic. The provinces of Groningen and Friesland are covered with a network of canals and water-routes, of which the Lemmer canal connecting Delfzijl and Groningen is the chief artery and establishes a connection with the Zuiderzee traffic. North-Holland and Amsterdam have the Great North-Holland canal, stretching from the Helder to Amsterdam and intended, after the draining of the Zuiderzee, to partly regain the importance it had previous to the opening of the North-sea canal.

In South-Holland the Amstel—Gouwe canal connects Amsterdam and Gouda with Rotterdam, it being intended for vessels up to 500 tons; important improvements however are being made at present by means of which vessels of a capacity up to 2000 tons will be able to use this canal. In North- and South-Holland Haarlem, Leiden, The Hague and Delft are also connected by canals of very fair size. In Zeeland owing to nature of the country, there is not much need for canals; there are however the South-Beveland canal and the canal between Flushing, Middleburg and Vere which are used by many ships. The canal between Terneuzen and Ghent is navigable for sea-going vessels of a capacity up to 10 000 tons.

Overijssel and Gelderland will only obtain satisfactory means of navigation when the construction of the Rhine-Twente canal is finished, which will be navigable for vessels of a capacity up to 1000 tons.

By way of completion it may be added that the Government has devised a canal from Utrecht to Vreeswijk, which is to replace the section of the Merwede canal

between those places. That section is only 20 m wide and 3.70 m A. P. deep, whilst the new canal branch will have a width of 35 m and a depth of 4.40 m A. P. Moreover this water-way, contrary to the now existing one, will be straight and will greatly benefit the water traffic at Vreeswijk by a new lock which is to be built. In this way a very rapid improvement of the Amsterdam—Rhine traffic will be obtained.



CHAPTER XXIV.

RAILWAYS.

Since 1917, the year of the amalgamation of the Holland Iron Railway Company founded in 1837 with the State Railways Exploitation Company founded in 1863, the railways of this country have been under the management of "The Netherlands State Railways", of which the head office is at Utrecht. The above Companies, working independently as such, share the profits and losses but have separate capital and reserve funds. By the Act of 1921, the share capital of the H.I.R.C. and the S. R. respectively 18 and 12 ½ million guilders, was increased by contributions from the State of fls. 22 and 27 ½ million, the State thus controlling the general work of this industry.

The development of the Dutch railway system dates from the opening of the line Amsterdam—Haarlem (H. I. J. S. M.) on the 20th of September 1839 and of the line Amsterdam—Utrecht (Rhenish Railway Company) on the 18th. December 1843. Between 1860 and 1890 the construction of the railway lines made its most rapid progress; the Act of 1860 provided for the construction of a closely connected complex system of railways for the account of the State, thus uniting the provinces with each other and with the centre of the country. The Dutch railway system, at present consists of lines having a total length of 3750 km. (including 1700 km. of double tracks); 2432 km. of which come upon the main lines, 963 km. upon local lines and 306 km. upon tramways. The electrification of the railways started with the line Amsterdam—Rotterdam and Haarlem—Ymuiden, and will shortly be continued on the lines Amsterdam—Uitgeest, Velsen—Uitgeest and Uitgeest—Alkmaar.

The figures relating to the working of the Dutch Railways, in which a sum of 815 million guilders in works and rolling stock is invested, show that in 1929, the gross proceeds were fls. 180.7 million and the expenditure fls. 130.1 million, the net profit being fls. 50.6 million. The number of passengers conveyed in that year was 58.7 million (apart from those using season- and excursion tickets) and the goods traffic 24.2 million tons; including coal, and exclusive of express freight transport. The staff of the Netherlands Railways now consists of 39 500 men. The total amount of wages paid in 1928 was fls. 88.6 million.

The rolling-stock includes \pm 2850 passenger carriages, \pm 35 000 goods carriages and coal trucks and over 1350 locomotives. For electric traction 119 motor carriages and 123 slip carriages are available. By means of 3000 coal trucks of a capacity of 21 $\frac{1}{2}$ tons, the Railways have lately provided for the continually increasing coal transport from Limburg, which, like the transport system of foreign railways has been strengthened by engines of a heavier type, and the most up-to-date equipment. Among the rollingstock for the goods traffic there are many special cars for the conveyance of meat, fruit, fish, beer, yeast, petrol, benzine, etc., whilst wholesale trades such as those of cars export butchers, breweries and others run their own cars to the number of 1350, on the tracks of the Dutch Railways.

* * *

The geographical position of the Netherlands makes great demands on the railway system in respect of international connections. In how far such demands are met, may appear from a short review of the connections with other countries for the conveyance of passengers, while

also particulars about the goods traffic with other countries will be given.

One of the most important factors of the international traffic as regards the Netherlands is the transit trade between England and Germany. Through the cooperation of the Netherlands Railways, the "Zeeland" Steamship Company and the London and North Eastern Railway, a splendidly organised day and night service Flushing—Harwich and Hook of Holland—Harwich has been established, together with numerous connections by rail between Holland and other countries on the Continent. Through-trains and carriages run from the Netherlands to Aix-la-Chapelle, Antwerp, Bale, Baden-Baden, Berlin, Buda Pesth, Bucharest, Bremen, Brussels, Chur, Dortmund, Dresden, Essen, Frankfurt, Geneva, Genoa, Hagen, Hamburg, Hanover, Innsbruck, Cologne, Leipzig, Liege, Lucerne, Milan, Munich, Paris, Rome, Stuttgart, Vienna and Zurich.

Amongst the recent and most convenient connections may be mentioned the Pullman train (*Etoile du Nord*) which keeps up a daily service between Amsterdam and Paris; also the *Rheingold Express*, a daily train running from the Hook of Holland via Amsterdam to Basle, Lucerne and Zurich; further the *Edelweiss Express*, running every day from the 15th. May to the 5th. October from Amsterdam via Rosendaal, Brussels and Namur to Basle, Lucerne and Zurich; the last named is a Pullman train. Reference may further be made to the important direct connections of the boat trains of the "*Nederland*" and "*Rotterdam Lloyd*" Steamship Companies respectively between Amsterdam—Genoa and The Hague—Marseilles and vice versa, enabling passengers going by the mail-steamers to and from Batavia to shorten their voyage considerably.

In direct communication with South Germany, Italy,

Austria and Hungary a day service to and from Munich has been established, which also connects with trains for Bucharest, Constantinople, Triest and further with steamers for Alexandria and Cairo; also a day service to and from Lucerne with through-carriages to Italy, via Nijmegen—Cleve and connecting with the boat service to and from England by way of the Hook of Holland; a day service to Frankfurt o/Main via Emmerich; a night service to Switzerland and Italy via Venlo—Kaldenkirchen, with connections to and from England via Flushing; a night service to Munich and Vienna via Emmerich, with 3 times weekly a sleeping car running through to Bucharest. Finally we may mention that trains coming from the East of the country a junction can connect at Rosendaal with the first train running from Amsterdam to Paris; that from 1st July to 15th September a train will run daily from Amsterdam to Basle and vice versa, via Brussels and Luxembourg, and that the train Hook of Holland—Berlin contains 1st and 2nd class D compartments and a saloon carriage.

* * *

The goods traffic on the Netherland Railways has undergone considerable extension from the commencement of the 20th century and has consequently been able to keep pace with the enormously increased home and foreign traffic of merchandise. This extension was not only made in the rolling-stock which from 16 925 goods carriages in 1902 has now increased to 34 244, but also in the greater traction capacity and the introduction of a variety of special trains, both in connection with the transport of food and fuel to the interior and in the making of connections with foreign traffic. For the transport of coal from Limburg, from 70 to 80

loaded coal trucks of a capacity of 20 tons can be conveyed on the line Heerlen—Amsterdam, which has three steep bridge inclines, and 100 trucks on the level track. Every day, 2400 coal trucks are at the disposal of the Dutch mines. The carrying capacity of the whole of the 34 000 goods carriages is \pm 500 000 tons; the capacity of each varies from 3 to 20 tons. In addition, many special cars for the conveyance of perishable goods, amongst others 500 cold-storage cars, as well as cattle-, meat-, fruit-, cheese-, beer- and yeast cars are running daily. The extent of the goods traffic may be judged from the fact that \pm 1100 goods carriages are daily circulating through the country.

The transport system for goods consists of delivery-, freight- and express goods services. For the benefit of the wholesale trade special goods delivery trains are run in addition to ordinary train deliveries. These special lines connect the extreme points of the country (for instance Groningen—Leeuwarden with Maastricht—Flushing, Rotterdam with Enschede, etc.).

The goods traffic is carried on partly by trains which stop at all stations on certain sections of the line, partly by direct freight trains. Between the most important centres non-stopping freight trains are running.

The composition of goods trains takes place at the large car-depots, viz. at Groningen, Leeuwarden, Zwolle, Amersfoort, Amsterdam (Rietlanden), Maarn (near Utrecht), Rotterdam, Elst, Roosendaal, Lage Zwaluwe, Blerick (near Venlo) and Susteren (for the mining district).

From Susteren coal trains run daily direct to Amsterdam, Rotterdam, The Hague, Haarlem, Utrecht, Flushing, Enschede, Leeuwarden and Groningen, whilst direct trains from the mine stations Heerlen, Nuth and Lutterade coal trains are dispatched to Amsterdam and Rotterdam, without stopping at Susteren.

As regards foreign traffic, reference may be made to the direct freight trains in the traffic to and from Germany and to the harbour stations Amsterdam, Rotterdam, Hook of Holland and Flushing (the two last named stations in conjunction with the steamers of the Zeeland Steamship Company respectively of the Harwich line to and from Harwich). These trains run by way of Bentheim, Gronau, Winterswijk, Emmerich, Cranenburg and Venlo—Kaldenkirchen, by which rapid transit with and through Germany is established.

In agreement with foreign railways as regards transport facilities to and from the principal places in Europe, the "International Goods Train Guide" has been published, in which the most important and most rapid connections are indicated.

For the transport of vegetables, fish etc., as express merchandise, regulations have been made, which enable goods from South Holland to reach Berlin within 29 hours, Hamburg within 31 hours, Hanover within 22 hours, Leipzig within 32 hours, Dresden within 46 hours, and the chief towns of the Ruhr region within 20 hours.

For the express goods traffic Germany—England via Bentheim a direct train runs from Leipzig to Hook of Holland connecting at Löhne with Berlin, by means of which the transport from Berlin and Leipzig to Hook of Holland is accomplished in ± 24 hours, whilst direct connection with England is obtained at Hook of Holland. This train, besides having good connections with Amsterdam and Rotterdam also affords direct connection with Flushing, in correspondence with the mail-service to England.

For the express goods traffic France—Belgium—Holland via Esschen very favourable connections also exist viz. Rotterdam—Paris 23 hours, Amsterdam—Paris

29 hours, Rotterdam—Basle 52 hours, Amsterdam—Basle 55 hours.

Tariffs are chiefly based upon a division in 5 classes, viz. one for general cargo: the general cargo class, and 4 for waggon loads in bulk: the waggon load classes A, B, C and D. Generally speaking the waggon load class A applies to valuable articles, the classes B and C to articles of less value and class D to raw materials.

The division of various kinds of goods in conformity with this classification is chiefly done by the Railway Administration; that for the sake of economical or commercial interests they often allow exceptions on the established classification in accordance with the above scheme, is a proof that this portion of the tariff policy is not meant to be rigid.

In addition to this general goods division there are also various special tariffs. By the application thereof a considerably reduced freight is usually charged for certain kinds of merchandise or under certain circumstances than would otherwise be due in accordance with the above classification. It will be easily understood, that in consequence thereof, in respect of almost every product or article, the particular transport requirements may be taken into consideration in the light of commercial or other interests, and may, if possible, be complied with. In this way fairly substantial freight reductions have sometimes been allowed.



CHAPTER XXV.

AVIATION.

For a country that measures at the utmost 300 km from North to South and not more than 200 km from East to West air traffic within its frontiers cannot be very important.

Therefore the Netherlands had to look abroad for air traffic and in this respect the chances were very favourable owing to the geographical situation of the country, the advantage of which was described in the first chapter of this book. Judging from the results obtained so far, Dutch aviation has availed itself of such opportunities in a very efficient manner. The enterprise which from the beginning has occupied the most prominent place in Dutch aviation, is the "Koninklijke Luchtvaart Maatschappij voor Nederland en Koloniën" (Royal Airways Company for the Netherlands and Overseas Territories) or K.L.M. which had been in existence ten years, on the 7th of October 1929. The Company was founded with the assistance of a number of financially powerful corporations, as banks, commercial and shipping companies, which were convinced of the great future of aviation and who wished that this country should also avail itself of this new means of transport, at an early date, by establishing air-lines of its own. They had more particularly in view the establishment of such lines in the Dutch East Indies, as well as a regular air-service between the Mother-country and her Territories in Asia.

Very agreeable, if somewhat uncertain relations have existed between the Government and the K.L.M. since its foundation, as nobody seemed to have a clear idea of the magnitude of the financial obligations involved.

The Dutch authorities at once took in hand the or-

ganization of the aerodromes, that of the wireless service, the supply of meteorological information etc. and declared their willingness to cover two thirds of the losses of the company up to a certain limit. Thus in the beginning the company kept up its private character, to a certain extent. This principle was maintained from 1920 till 1922.

In 1923 the Government made an agreement with the Company and granted it a subsidy for 4 years, until the 31st of December 1926. The principal stipulations of this contract were the grant of a decreasing subsidy (f 400 000 for each of the years 1923 and 1924 and f 300 000 for each of the remaining years 1925 and 1926) for running a limited number of lines. After this period a new contract was made covering 7 years, expiring on the 31st of December 1933.

The basis of the latter contract was that the Government granted a subsidy decreasing every year, against which the Company engaged themselves to produce a steadily increasing quantity of ton/km on her international routes.

Actual flying services were started on the 17th of May 1920, the first line operated being an alternate service Amsterdam—London. This line is the oldest of the K.L.M. and was only stopped during the winters of 1920/1921 and 1921/1922, but has been running ever since.

Operations were successively extended to Bremen, Hamburg, Copenhagen, Brussels, Paris, Zurich and Malmö.

In 1929 the K.L.M. established lines of their own to London, Brussels and Paris. The line to Hamburg was opened up in cooperation with the "Deutsche Luft Hansa", to Copenhagen—Malmö in cooperation with the A.B.A. and to Basle—Zurich in cooperation with the "Balair".

Transit routes Malmö—London and Malmö—Paris via

Amsterdam in both direction have been established; also a rapid route London—Berlin, with connection to Vienna.

The K.L.M. have tried from the beginning to attract the public to the aerodromes, in order to popularize flying and get the visitors over certain prejudices.

The K.L.M. have therefore run their own restaurants and hotels on the aerodromes and organized trips and invited the visitors to come and see the hangars.

The K.L.M. have always made strong efforts to develop goods traffic as much as possible. They were the first company in the world to establish booking offices of their own, first at Amsterdam at 1921 and afterwards at Rotterdam in 1924.

With these bookings-offices as a centre, an active propaganda has been carried on with remarkable results. Especially the shipment of flowers and other horticultural and agricultural products has developed enormously. Contracts were made with the most prominent firms.

Between the horticultural centre the "Westland" and the Waal harbour of Rotterdam a special air-service for export purposes has been established. In March 1929 a daily freight service to and from London was started.

The K.L.M. have especially made it a point of organizing big tourists flights for various purposes.

In the year 1929 about 30 000 km were covered by special flights.

We would mention here in the first place special flights made in order to bring food and mail to the Dutch islands when they were entirely isolated in winter, owing to drift-ice.

In February 1929 the K.L.M. have been able to give important assistance in this way to Denmark, during the severe winter.

In the year 1929, the K.L.M. carried 19 273 passengers, 869 262 kg of goods and 65 029 kg of mail.

At the end of the year 1929 the fleet of the K.L.M. consisted of the following machines:

1 plane for photographic purposes, 1 F III, 2 F VII, 8 F VII A, 5 F VIII and 4 F VII B.

In 1929 the transport of passengers exceeded that of 1928 by 13 %, that of goods by 29 %, that of mail by 87 %. The regularity of the traffic was 96.6 %. In that year 1 920 000 km were covered.

It has always been the policy of the K.L.M. to keep the fleet as small as possible and to get the greatest number of flying hours out of the machines. Of course, this depends largely on the type of machine and the easiness of maintenance.

In the year 1921 only 53 out of every hundred days a machine was available for service and had to be kept 47 days in the hangar. In 1928 each machine was available 88.1 days out of 100.

In the beginnig the machines flew only 300 hours per year, but lately 1000 flying hours per machine have been recorded.

The commercial results were accordingly. In 1922 the ton/km was produced at a price of f 4.74; this price was already reduced to f 1.21 in 1927. This amount includes all expenses and is obtained by dividing the total working expenses of the company per year by the total amount of ton/km produced.

We might mention in this connection that the K.L.M. have been doing much pioneer work, by bringing out for the first time new types of air-craft and especially new types of engines. It may be mentioned that the K.L.M. were the first air traffic company to use air-cooled engines and that recently they were the first to use the new Titan engine.

In 1921 the K.L.M. began running their air-services with British and German pilots, as only 2 Dutch pilots

left the army to enter civil aviation. In 1922 however, the greater part of the pilots was already of Dutch nationality and in 1923, only one foreign pilot was in the service of the Company.

As there was no civil flying school in the Netherlands, the K.L.M. had to take their pilots from the military air-force and give them additional training.

K.L.M. machines are all fitted with wireless telephones, which generally give satisfactory results. The type Marconi A D 6h was lately used.

The K.L.M. have had from the very beginning their own ground organisation in Croydon aerodrome and have recently also founded such an organisation in the aerodrome of Le Bourget.

In other ports they have left the ground organisation to the care of the local air service, but in the principal ports they have own representatives, who are often assisted by a special "commercial attaché".

The K.L.M. in 1921 established a department for aerial photography, which from the very beginning has been a great success. Aerial photography is used for illustrations in many prominent papers and periodicals; serials of post-cards showing bird's-eye views of picturesque towns in the Netherlands, are sold in all book-stalls, stationary shops etc. Specially big industries, municipalities, public works etc. have used K.L.M. aerial photography for different purposes.

In 1924 the first trial-flight Amsterdam—Batavia was made with a F VII Rolls Royce machine.

In 1927 two return-flights were made, one with the purpose of bringing a tourist to the Dutch East Indies and back again, and one with the aim of establishing a quick postal connection between the two parts of the Kingdom of the Netherlands.

In 1928 four machines were sent by air to their desti-

nation, the Dutch East Indies, and two other trial flights for postal purposes were carried out, followed by a series of eight fortnightly postal return-flights at the end of 1929 and in the beginning of 1930. It is the intention to repeat these series of fortnightly flights in 1931, when the ground organisation on the route that is followed will have been improved, and a regular weekly service in both directions taking about 12 days each way (by steamer at least 23 days) comes into the range of possibilities.

In 1927 a group of shareholders of the K. L. M. together with other firms, especially interested in Dutch colonial work, founded the N. V. Koninklijke Nederlandsch-Indische Luchtvaart Maatschappij (K. N. I. L. M. — Royal Dutch East Indian Airways), which is working in close cooperation with the K.L.M.

The first services were opened on the 1st. of November 1928 on the routes Batavia—Bandoeng and Batavia—Semarang. Other services, such as to Sourabaia, Singapore and Palembang—Medan will soon follow.

From the very beginning traffic on these routes has been intense.

The Indian services will in future link up with the Amsterdam—Batavia route and with the British lines to Australia and New-Zealand.

From the first the K. L. M. had to sustain the competition of foreign companies enjoying greater subsidies and other facilities. Upon the average, competing concerns were receiving per km flown a subsidy of many times the amount granted to the K. L. M.

This has often been the reason that the K. L. M. could not develop as fast as they would have wished, but on the other hand it has compelled the K.L.M. to keep their organisation on strict business-lines and to try to make air-traffic as soon as possible a self-supporting enterprise.

Although there have been many crises in the existence of the K.L.M., they are to-day the oldest air traffic enterprises, having worked without interruption during more than eleven years, under the same style and the same management.

* * *

Government Control of the Air-Service.

In the Netherlands the supervision of civil aviation is in the hands of the Traffic-Department or, as it is called here, Waterstaat Department. In order to serve the Government in an advisory capacity with regard to all important matters touching aerial navigation in general, a Royal Commission for Air Navigation was appointed in 1919. Air traffic in the Netherlands has been regulated by the Air Navigation Act of July 30th 1926 (Official Gazette no. 249). This Act, which came into operation on February 1st. 1929, gives only general directions, which have been further elaborated and supplemented by an Order in Council.

With regard to the international air traffic the relations with other countries have been settled amongst others by the International Air Navigation Convention of Paris on October 13th 1919, joined by the Netherlands in August 1928.

For so far as necessary the Dutch Government assist the development of aviation. Monetary assistance has been granted by way of subsidy. The Netherlands started to do so in 1920 and therefore belong to the first countries which assured financial assistance to their national air-navigation companies for several consecutive years and in this way made a proper development possible. Moreover by taking shares and guaranteeing the interest and redemption of debentures, the

Kingdom has engaged itself to provide to a large extent capital needed by the company. In the second place the Government has given assistance by founding and maintaining an institution for scientific research. This institution has four sections, viz. one for aero-dynamic investigations, one for the building and construction of aeroplanes, one for testing materials and one for testing motors.

The institution has at its disposal: a wind tunnel, a laboratory-aeroplane, laboratories for testing materials and motors, etc.

To secure safe flying the Kingdom further contributes to the establishment of the required ground organisation.

For this purpose the Kingdom has provided:

1. a wireless service for reporting the arrival and departure of air-craft;
a broadcasting and wireless service to keep in touch with air-craft in the air and to ascertain the position of such air-craft, as well as a meteorological service for air navigation (sending and receiving of weather reports for the use of pilots and the communication of meteorological data to aerodromes and air-craft in the air);
2. the establishment on the customary routes of emergency landing-fields and beacons the latter for guidance as well as for indicating high masts, which are dangerous to air traffic;
3. trial experiments with regard to the illumination of aerodromes and signal systems on behalf of aviation;
4. the publication in "Notices to Airmen" which have also a circulation abroad, of various data of interest to air-traffic.

Emergency landing-fields have been laid out on the air-routes Rotterdam—London, Rotterdam—Paris and Amsterdam—Bremen, for so far as these routes pass over the Netherlands. For forced landings the military authorities have put a few military aerodromes at the disposal of civil aviation.

The principal flying port of this country is the aerodrome of Schiphol near Amsterdam, which was originally intended for military aviation only. This aerodrome is managed by the municipality of Amsterdam and at present provided with quite up-to-date contrivances.

The second airport in our country is the aerodrome Waalhaven near Rotterdam. This aerodrome has been laid out by the municipality of Rotterdam at its own expense and is also worked by this corporation. Rotterdam was the first town in the world to have an aerodrome of its own.

Besides both these two important air-ports the State-owned aerodromes at Flushing for land planes and at Schellingwoude for hydroplanes may be used by the international air-traffic, while an aerodrome for general aviation near Enschedé is being laid out for account of a few interested municipalities in Twenthe, the centre of the cotton industry. Further a few private aerodromes have recently been opened.

The emergency landing fields laid out on the air routes as well as the military courses, which may be used by civil aviation in case of a forced landing, are the following: Arnhem, Bussum, Deventer, Gilze-Ryen, Harskamp, de Kooy, Milligen, Oldebroek, Roosendaal, Rijssen, Soesterberg, Venlo, Vught and Zierikzee.

For hydroplanes the aerodromes at Veere and at de Mok (on Texel) may be used for landing in case of emergency.

In 1907 the Royal Netherlands Aero Club was founded

for the purpose of supporting the development of air navigation by making propaganda and studying all subjects concerning aviation.

The National Aviation School started its operation as the first Dutch Civilian School of Flying in September 1927. It is subsidised by the Rotterdam Aero Club.



CHAPTER XXVI.

SHIPPING.

Shipping in the Dutch seaports derives its significance to a great extent from the country's own fleet, which by numerous regular lines maintains the sea-borne traffic with other countries and continents and from the constant arrivals and departures of foreign vessels, which either call at Dutch ports or find in these ports their destination. The importance of the Dutch mercantile marine will be understood from the fact that the Dutch flag occupies the second place with regard to the quantity of tonnage passing through the Suez canal; navigation to the East-Indies has indeed been and remained one of the principal factors in its development. By the side thereof regular services are held to the West Indies, North America, South Africa and South America, Eastern Asia and Australia, which services have their home ports at Amsterdam or Rotterdam. About 90 regular line services from the Netherlands provide connections with practically all ports of the world, whilst foreign vessels belonging to over 140 lines regularly call at Dutch ports.

In spite of heavy losses during the War, when 343 Netherland ships of a gross tonnage of 296 000 were lost, the Dutch mercantile marine has now again reached par, and, at the end of the year 1930, numbered 845 steam- and motorships, at 2 891 710 gross registered tons, the home ports of which are at:

	Number.	Gross reg.tons.
Amsterdam	403	1 348 080
Rotterdam	279	1 102 464
The Hague	87	402 449
Flushing	3	8 295
Terneuzen	7	10 987
Groningen and Delfzijl.	48	8 761

Of all Dutch sea-going vessels and other ships of 100 gross reg.tons and more, occurring in "Lloyd's Register of Shipping", till June 30th 1930, the total number of which was 1381, at 3 079 000 tons, there were:

	Number of ships.	Gross reg.tons.	Per cent.
up to 5 years old.....	287	736 344	23.9
5—10 „ „	227	812 089	26.4
10—15 „ „	310	552 247	18—
15—20 „ „	205	560 821	18.2
20—25 „ „	131	281 110	9.1
25 years and more...	221	136 389	4.4

The Dutch Shipowners Association, the central organization of the steamship companies comprises 45 owners, whose ships form 99.3 % of the Dutch mercantile marine. In 1929 58 vessels were launched.

The largest vessel of the fleet is the "Statendam" of the Holland America Line, having a capacity of 29 511 gross reg.tons, which was put in service in 1929. Divided according to their use, the fleet of steam- and motor-ships comprises 88 large and smaller passenger-, 464 cargo- and 41 tank-ships. In addition there are 58 large ocean-tugs.

The importance of Dutch shipping, as already remarked, lies in the regular communication with other parts of the world. These are for the greater part in the hands of the 10 largest steamship companies, viz.:

1. Steam-Navigation Company "Nederland" (Amsterdam) with 41 vessels maintaining a fortnightly passenger service between Amsterdam and Batavia and other services in combination viz.: the Java Bengal Line, the Java New-York Line, the Java Pacific Line, the Java South America Line, the Holland East Asia Line and the Holland Australia Line.

2. Rotterdam Lloyd (Rotterdam) with 39 vessels maintaining also a fortnightly passenger service (alternately with the "Nederland") to Batavia. This Company also runs services between Hamburg, Bremen, Antwerp, London, Genoa and the Dutch East Indies, Java and New-York, Java and Bengal, Java and the Pacific coast.

3. Royal Packet Navigation Company (Amsterdam) with 129 vessels, maintaining entirely the coastal service for passengers and cargo in the Indian Archipelago and also running services from Java and Singapore to Australia, from Deli—Singapore to Southern China, from Deli to Rangoon, from Java to Siam and from Saigon to the Mollucas. This Company keeps up 56 regular line services and connects with the Dutch mail-steamers sailing from and to the Netherlands. Gradually the fleet has been renewed and the size of the vessels increased.

4. Java-China-Japan-Line (Amsterdam) with 18 vessels, running passenger services from Java to West-, East- and South China, from Java to Hongkong and Saigon and from Java to Japan. There is a further line service from East Borneo to China and Japan.

5. Holland America Line (Rotterdam) with 10 passenger- and 22 cargo boats, maintaining a weekly passenger service to New-York and also a cargo service Boston—Philadelphia—Baltimore—Newport News, a passenger and cargo service Cuba—Mexico via Spain, and one to the North Pacific Coast; a cargo service New-York—Java.

6. Royal Netherlands Steamship Company (Amsterdam) with 88 vessels, running 12 services between various ports in Europa, while to the West Indies the Company is working the Colon Line (fortnightly passenger and cargo service), the Surinam Line (3 weekly ditto), the

South Pacific Line, the Guatemala Line, the Curaçao Line, a service to Maracaibo and one to Cristobal—Écuador.

7. Royal Holland Lloyd (Amsterdam) with 4 passenger and 12 cargo steamers, maintaining regular services to South America and transporting considerable numbers of emigrants for whom a large hotel has been built at Amsterdam.

8. United Netherlands Navigation Company (The Hague) with 28 vessels, running regular services to East-Asia, India, Australia, South- and West-Africa.

9. Van Nievelt Goudriaan en Co. (Rotterdam) with 24 ships, partly running regular services to the Argentine, Uruguay and Brazil.

10. Dutch Steamship Company "Oceaan" (Amsterdam) with 5 vessels, maintaining regular cargo services to the Dutch East Indies and also having cargo services via Hamburg and Liverpool to Netherlands India and from New-York to Netherlands India.

In addition to these 10 Companies the Dutch mercantile marine includes also a number of important line services to European countries, the principal ones being:

the Holland Steamship Company (Amsterdam), which maintains with 17 vessels 7 services to various ports in England;

the firm of Wm. H. Müller & Co. (Rotterdam), running 6 times a week a passenger service to London and also weekly and fortnightly cargo services to Middlesbrough, Aberdeen, Bordeaux, La Pallice, Paris and Hamburg;

the Navigation and Coal Company (Rotterdam), with 15 vessels, sailing twice a week to Grangemouth and once a week from Harlingen to Goole;

the Zeeland Steamship Company (Flushing), with 3 vessels, maintaining a daily passenger service to Harwich.

A very important branch of Dutch Navigation is the international ocean towage service, the principal owners being L. Smith & Co's International Towage Service of Rotterdam, which disposes of 17 large ocean tugs, whereof the engine power varies between 500 and 1500 I. H. P.; of the nearly 5000 vessels of various kinds, towed by this Company across the ocean in 35 years, only 0.828 % have been lost. The greatest achievement was accomplished in 1928, when in 4 months time a 50 000 tons dry-dock was towed in two portions from England to the naval base at Singapore, a distance of 8500 miles.

As indirectly connected with the above, mention must also be made of the Rhine towage service, centred at Rotterdam and at Amsterdam. The largest owners in this respect are the "Rhea" of Rotterdam, which disposes of a fleet of 50 tugs, with a total power of 20 000 I. H. P. The largest Rhine barges now measure 4200 tons and have a length up to 130 m.

Finally we may mention here the 41 petrol tank-steamers which have their base in Holland and of which the Batavian Petroleum Company and the Netherlands Indian Tank-steamer Company own the greater part.

* * *

The duties of the Government with regard to shipping are manifold. The law has provided for: the entry of all sea-going vessels into the Shipping Register; the application of the maritime law in the Commercial Code and that of separate shipping laws; the issue of certificates of nationality; the prevention of accidents at sea and the general safety on board; the supervision of boilers, the maintenance of discipline on board, the insurance of passengers and crew against the consequences of accidents; the superintendence of loading and unloading

gear (Stevedores Act). This supervision is exercised by the Port Labour Inspectors; that of the seaworthiness of ships by the Navigation Inspectors. The State also has contracts with various Steamship Companies for the conveyance of persons and mails, and assistance is sometimes given in the financing of steamship services.

Other State institutions are the Navigation Court, which investigates maritime disasters and takes disciplinary measures. There are supervisory committees for the passage of emigrants and for the transport of inflammable material. In the different ports 12 medical officers are established for the sanitary examination of incoming vessels.

As regards the training of crews, reference may be made to the examinations for obtaining mercantile marine and towage service certificates for officers and engineers, as well as wireless certificates. For the training of masters, officers and engineers there are in Holland ten mercantile marine training colleges in different seaports and places on the coast. Pleasant lodgings are offered to seamen in the Sailors' Homes at Amsterdam and Rotterdam. In London, where some 700 Dutch seamen are sojourning daily, a Dutch Sailors' Home has been opened.

Of real importance to the knowledge of Dutch maritime affairs, next to the historical instruction to be obtained in museums, is the Nautical Institute and Technical Museum at Rotterdam which was reopened on the 1st of July 1929 and exhibits the newest inventions and appliances in connection with nautical science and with regard to the Dutch harbours and coast, and also contains a nautical library, a reading room and an enquiry office.



CHAPTER XXVII.

SAFETY ALONG THE COAST.

Although the coast line of the Netherlands is not very conspicuous on the map of Europe, it is yet the starting point, destination or port of call for a very considerable mercantile fleet. There arrive at or depart from the Dutch ports annually 36 000 sea-going vessels, of which over 225 regular line services of steamship companies form the nucleus. To this must be added the coming and going out of the fishing vessels, consisting of about 5000 bottoms. In consideration of the comparatively few harbours for the important shipping traffic and the condition of the North-sea coast, exposed as it is to storms from the North West, an efficient watch- and protective service has been installed along the whole coast, this service being divided into three parts: the pilot service forming part of the Department of Defense, the lighting buoys and beacons service, also entrusted to the care of the Navy, and the life-boat service which is in the hands of private companies.

The Dutch pilot service, which has a great reputation among foreign shipping, is divided amongst six districts. In the 1st district, Delfzijl, one steam pilot boat is permanently stationed off the entrance to the Eems harbour and one is kept in the harbour in reserve. Vessels, approaching the harbour of Terschelling (2nd district), may get a pilot at any time by making application by wireless to the shore depot of the Navy at Willemsoord (Den Helder) or by means of a pilot signal to the lightship "Terschellingbank". This lightship transmits the request by broadcasting to the lighthouse "Brandaris". A tug will then put to sea. Vessels coming round by the South,

may if they wish make their request known direct to the lightship "Haaks" when passing this ship, which will then transmit it by broadcasting to Kijkduin, whence it is sent on by telegraph or telephone.

Off the harbour entrance of Texel (3rd district) the pilot service is similarly organised. A steam pilot boat is always cruising off the harbour of IJmuiden.

In the 4th and 5th districts 2 steam pilot boats are cruising off the mouth of the New Waterway, their pilots taking ships on to Rotterdam. Off the harbour entrance of Goeree a steam pilot boat is also cruising. At Hellevoetsluis as well at Brouwershaven ships may obtain river pilots as far as Dordrecht.

The 6th district concerns Flushing and the Scheldt. Off the East entrance to the port 2 steam pilot-boats are cruising and off the Wielingen 1 steam pilot-boat. Pilots take on vessels through the Easter Scheldt to Veere or Zierikzee, through the Wester Scheldt to Flushing. Here, at Terneuzen and at Antwerp, river pilots are stationed. There is a special pilot-service stationed at sea off the mouths of the Scheldt, to ensure vessels off the Scheldt being quickly attended to.

Pilots are stationed as follows:

At Delfzijl there are 15 masterpilots and sea pilots; at Terschelling 6; at Harlingen there are 3 river pilots and at Helder 3 sea pilots and 1 river pilot. At Amsterdam there are 18 river pilots. Should any pilots be required at Zaandam, they are ordered by telephone from Amsterdam.

At IJmuiden are stationed 32 master-pilots, sea pilots and 1 river pilot.

The districts no. 4, 5 and 6, as regards the principal stations, are manned as follows: at Rotterdam 5 sea and 38 river pilots; at Maassluis 3 master pilots, 82 sea and 4 river pilots; at Flushing 8 master pilots, 82 sea and

27 river pilots; at Terneuzen 11 river pilots and at Antwerp 12 river pilots.

A reorganisation of the service has extended the authority of the channel pilots of Amsterdam, who now pilot ships to sea. 1st class master pilots have command of steam pilot boats and are chosen from amongst the oldest and most capable sea pilots.

* * *

The coast lighthouses are in charge of the Government Research Bureau for the coast lighthouse service at Scheveningen. The most up-to-date technical appliances and instruments are here installed for the service of the 12 lighthouses and 6 lightships as well as of the secondary lights, viz. 125 shore lights and 100 light buoys near the harbours. For the lighting of the coast which by the newest means of illumination and optical installations satisfies the highest requirements, six types of lights are used: fixed light, fixed light with obscuration, glitter light, intermittent glitter light, flash light and group flash light. The kinds of light employed have for the greater part been replaced by electric light, by pharoline incandescent light, which is twice as brilliant as petrol-incandescent light and by blue gas-installations with lighting and extinguishing clockwork.

One of the newest types is to be found in the coast light of Eierland (on Texel); it is supplied with an electric intermittent glitter light, showing each 15 seconds a group of rapidly succeeding sparkles. An automatic lamp-exchanger ensures that in the event of any interruption of the electric current supply a blue gas incandescent light burner will operate in the place of the electric incandescent lamp.

The apparatus is provided with an electric switch, which in the event of failure of the electric current ensures that the required power is automatically supplied by a kind of clockwork.

Very important improvements have been introduced in lightship installations. The newest is the lightship n°. 8, at station Maas. On the steel mast at a height of 16 m above the waterline a lantern with pendulum optic has been placed. Provided with a 4 km Brandaris lamp, this apparatus shows every 20 seconds 4 flashes of 500 000 candle power and 0.6 every second. This vessel is fitted with 2 piston sirens and with an electro-magnetic submarine sound signal.

By the application of Brandaris lamps for illuminating the optic, the light power of this ship exceeds many times that of the most powerful of the known lightships. This lightship is also supplied with a radio-station. On the lightship "North Hinder" a similar wireless installation has been established. Each 30 seconds the call letters N. R. are signalled twice in Morse code (signalling time 8.5 sec.) followed by an interval of 1.25 seconds; subsequently 14 gauge lines each of 1 second at respective intervals of 0.25 of a second; after that an interval of 3 seconds. This signal is repeated successively 7 times; for this the total signalling time is 3.5 minutes.

An excellent way of determining the position of a ship is the combination of wireless and submarine fog signals (membrane transmitter). On a simultaneous observation being made of wireless and submarine fog signals a number of gauge lines of the radio signal, which can be counted before the submarine fog signal is heard, will correspond to the distance in nautical miles of the lightship's observer. This installation appears to be of great value to navigation. Any vessel, provided with a radio gauge installation, in foggy weather is able to continuously

determine both the distance and the bearings of the lightship, and has therefore an exact knowledge of its position. The lightships "North Hinder" and "Maas-haven" have also lately been supplied with a nautophone (air transmitter with an electrically vibrated steel membrane).

By means of broadcasting with bell-call signal, weather reports are daily given from the lightships "Noord-Hinder" at Kijkduin and Terschelling and are then sent on by wire to the Meteorological Institute at De Bilt. The storm warning signals of the Institute are transmitted in the opposite direction to the lightships.

The pilot's steamer off the mouths of the Eems (station Delfzijl) is also provided with a broadcasting installation (transmitting and receiving instrument). The Research Bureau at Scheveningen has a receiving and a transmitting apparatus, with a view to controlling the radio telephonic communications from the lightships and in case of technical difficulties to be able to send immediate instructions.

Lighthouse lights have likewise undergone considerable changes, as a result of the modernization of the lighting technique. The longest beams are sent out by the 30 meters high lighthouse at Scheveningen, where an intermittent glitter light of $2\frac{1}{2}$ million candle power has been installed, which is visible at a distance of 28 miles. An auxiliary lighting apparatus gives air pilots an opportunity of determining their position. The lighthouses of Ymuiden and Hook of Holland are also able to satisfy the requirements of shipping to and from Amsterdam and Rotterdam. They are in communication with guiding lights on shore, in order to facilitate the entry of vessels.

The Rescue work along the Dutch coast has a long and honourable record of service. The two Com-

panies, who undertake this work: the North Holland Life-boat Company (from Rottum to Kijkduin, also on the coast of the Zuiderzee) and the South Holland Company for the saving of shipwrecked persons (from Kijkduin to Cadzand in Zeeland) have since the year of their foundation (1824) saved the lives of over six thousand people. They are provided with every means to render immediate assistance and have entirely modernized their fleet. In the large harbours and at important points numerous storm- and motor life boats are stationed, whilst horse traction on the beach has been largely replaced by motor tractors with caterpillar bands. The crew, a picked number of experienced sailors, is being regularly trained in rendering first aid in cases of accident.

The material of the salvage companies is distributed over 23 depots on the North sea coast and 5 on the coast of the Zuiderzee. It consists, as regards the first mentioned Company, of 9 motor lifeboats, 28 beach lifeboats and 18 line casting apparatuses; there are also 5 spare lifeboats. The South Holland Company has at its disposal 7 motor lifeboats and 6 line casting apparatuses. The harbours of Ymuiden and Hook of Holland contain the largest and most up to date boats; in fact a new and powerful motor lifeboat has been put in service for Ymuiden, for vessels of a large size. At a few places along the coast shelters for shipwrecked people have been erected.

It is worth recording that the expense of the rescue-work on the Dutch coast is entirely defrayed by private contributions and donations.

To meet any requirements in the way of assistance or salvage in case of shipwreck or other accidents, a depot of salvage vessels equipped with up-to-date installations (powerful pumps, etc.) has been established at Maassluis.



CHAPTER XXVIII.

THE PORTS.

The Dutch ports, which can be used by sea-going vessels, are fifteen in number. They may be divided into three groups: Rotterdam, with the entrance harbour Hook of Holland and the intermediate harbours of Schiedam, Vlaardingen and Maassluis; Amsterdam with the entrance harbour of Ymuiden and the timber port of Zaandam; Flushing with the Zeeland harbours of Terneuzen and Breskens; and further the separate harbours of Dordrecht, Delfzijl, Harlingen and Den Helder. This chapter will chiefly deal with the equipment of the ports and with such industries as are connected therewith; in the chapter on "shipping" particulars will be found with regard to the shipping movement of these ports.

Among the ports of the Netherlands Rotterdam takes the foremost place, as it has the largest shipping movement. Accessible to the largest ocean steamers along a waterway uninterrupted by either lock or bridge; situated on a great river, navigable to far into the interior of the country; completely free from ice and in direct communication with the main lines of the network of the European railway system, the port of Rotterdam has shown to be fully equal to the requirements of a world harbour.

Although in the traffic of the port the so-called "tramps" predominate, Rotterdam is yet the basis of numerous regular line services to other parts of the world, such as the Holland America Line, the Rotterdam Lloyd, the Holland Africa Line, the Holland Australia Line and the Holland East Asia Line. Of the Dutch Mercantile Marine 324 sea-going vessels have their home-port at Rotterdam.

In the goods traffic bulk cargo predominates, chiefly consisting of grain, ores, coal, petroleum and timber, further also cotton, rubber, oils, coffee, hides, etc., for which special warehouses have been erected. These articles represent 78 % of the total imports. The equipment of the port, as regards rapidity of transshipment or unloading and the capacity of warehouses is therefore largely made to correspond with this traffic.

With regard to coal transports, it often happens that a vessel with 4000 to 5000 tons of coal on board is unloaded and leaves the harbour again, within 5 hours. The up-to-date coal transporters, of which the port possesses 23, are able to deal with from 200 to 500 tons per hour. By means of the gigantic cranes, which protrude more than 40 meters beyond the quay, unloading can take place on either side of the ship.

For grain transport the port of Rotterdam has at its disposal 27 floating elevators, of a capacity from 150 to 300 tons per hour; an unloading capacity of 3000 tons per day is guaranteed. At the 4 grain silo buildings, of which the largest can store 55 000 tons of grain, ships are unloaded by means of elevators within a few hours.

For the storage of frozen meat and perishable goods the port has a cold storage warehouses with a capacity of 10 000 cubic meters, where there is room for 4 million kg of meat.

As a petroleum harbour of the first rank, Rotterdam is provided with extensive tank installations, which have a river frontage of 1 ½ miles, and are specially fitted for the storage of petrol, fuel oil and benzine. A new petroleum harbour is in the course of construction below Pernis.

For the repairing of ocean steamers the port is supplied with 15 floating dry-docks, of which the largest has a lifting power of 46 000 tons. The engine works belong-

ing thereto are calculated to effect without delay the most intricate repairs and renewals. In connection with the extensive traffic of sea- and Rhine vessels, there are \pm 500 tugs available among which there are a few very large sea-going tugs. These are able to convey dry-docks, dredgers, tin mills and such like to other parts of the world.

The port of Rotterdam which now covers an area of 510 ha, is still being regularly enlarged, which is shown by the extensions including the Waal harbour, where a space of 200 ha can be used already by sea-going vessels and by the construction of the Merwe harbour with adjoining grounds, where amongst others, a Ford factory will be built as well as the proposed construction of a harbour for Rhine boats.

Extensive plans for enlarging the area of the town in the direction of the sea, so that Rotterdam would be then three times its present size, are being considered as a result of the increasing demand for harbour room and space for commercial- and industrial buildings.

The total length of quays for sea-going vessels of great draught, is 47 km, whilst there are besides 16,5 km anchorage space at buoys. The quays are provided with 228 electric- and steam cranes for dealing with general goods, of which large quantities are constantly handled in the port of Rotterdam, and for which it is well equipped, also as regards railway connections and warehousing space. Of the 10 530 sea-going ships, which arrived in 1929, 1903 were loaded with ore, 592 with coal, 736 with grain and 568 with timber.

In conformity with its international importance, the port is supplied with a quarantine station, port infirmary, river police, navigation school, verification offices for nautical instruments, navigation museums, etc.

The erection of a new Commercial Exchange with a

ground surface of 13 000 m² and a height of 17 m has been planned.

In many respects Schiedam may be considered a continuation of the Rotterdam harbour. For its own industry this town only requires harbour works of moderate proportions, nevertheless its territory contains very large shipyards and docks, which include the largest dock above referred to.

Of a growing importance is the harbour of Vlaardingen, to which certain large industries established there (artificial manure works, soap works, milk products factory, and others) have largely contributed. The shipping traffic is chiefly distributed over three harbour basins: the Vulcan harbour, which is 700 × 200 m in extent and 30 feet deep at low tide, where large coal bunkering machines, steam floating-cranes and sheds for the storage of goods having an area of 5000 m² are available, and where yearly 3¾ million tons, chiefly of ore and coal, are handled. The Matex harbour which is the property of a large commercial concern, dealing in petroleum, petrol, train-oil and other oils, which owns 74 tanks holding 120 000 tons, and has also a widely ramified pipe installation for transshipping oil into tanks and tank waggons. The third harbour is the property of the Cooperative Artificial Manure Works; here 200 000 tons of raw materials and products are annually dealt with. The herring harbour is small in comparison with the others, but is being deepened to 24½ feet at low tide. Vlaardingen has a fine municipal "Trading Hall" with a room for herring auctions, a shipmasters' exchange and a fishery school.

The harbour of Maassluis is only of importance as regards the herring fishery and is the base of Smit's International Towage and Salvage Company, to which reference is made in the Chapter "The Dutch Coast".

As the seat of the pilot service and entrance to the New Waterway, the harbour of Hook of Holland is abundantly equipped with everything necessary thereto: lifeboats, light-ship, lighthouse, semaphore, quarantine station, storm and tide signals, wireless station etc. The mouth of the harbour is permanently kept at the required depth by two dredgers.

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Of the port of Amsterdam in many respects the same may be said as of that of Rotterdam especially as regards the anchorage space for sea-going vessels of great draught, as well as for Rhine- and canal boats, the equipment and the warehouse space. The character of the port of Amsterdam is however pre-eminently that of a base of regular line services and is determined by its commercial relations with the East and West Indies and other tropical countries. Amsterdam is the seat of the Steamship Company "Nederland", of the Java-China-Japan-Line, of the Royal Dutch Lloyd, the Royal Dutch Steamship Company, which at present incorporates the Royal West Indian Mail Service, the Dutch Steam Navigation Company "Oceaan" and others, and in connection therewith the Eastern portion of the harbour is entirely given up to these lines partly on the Y-island, where names like Java-, Sumatra-, Borneo- and Surinam quay point to the origin and destination of goods stored in the many warehouses, storing and stacking yards, equipped with electric cranes and transporters. The Western portion of the harbour is of more recent date and more especially devoted to the "tramps", carrying goods in bulk. On the other side of the Y an extensive complex of factories, wharves and dock industries has developed, and this to

such extent that the want of a permanent connection across the Y is being increasingly felt.

The petroleum harbour, the most westerly point of the Amsterdam harbour area, is $9\frac{1}{2}$ m deep, Amsterdam level, 17,4 ha in extent and has 9 quays; there are 48 tanks having a capacity of 96 000 tons of oil and underground storage space for naphtha. The Jan Pietersz. Coen harbour which is near by at the entrance has a width of 150 m at the bottom; it covers an area of ha and has a depth of 10,30 m.A.L.

The centre of the Eastern portion of the harbour is the Y-island referred to above in connection with which we may mention here the very large corporation warehouses (warehouses for large quantities of tropical produce), the old and the new bonded stores (with 7 warehouses), the refrigerating plant (with a capacity of 730 779 cub. feet) and the warehouses specially fitted for the storing of southern fruits. With a view to the main line services (52 routes run from Amsterdam to all parts of the world and its mercantile fleet numbers 265 sea-going vessels), the port is provided with 12 docks, partly excavated, partly floating, the largest of these having a lifting power of 27 000 tons.

For the Rhine navigation, the busy inland shipping and to supply the markets boat traffic, there are a number of harbours and piers especially fitted for that purpose. The port is further provided with many tugs, water boats, floating fire-engines, police-boats, ambulance and disinfecting vessels, ice breakers etc. There are also established at Amsterdam the Marine Training-School and the Historical Navigation Museum. Special mention should be made of the time signal, operated by the extinguishing of an electric burner, whereby the entire harbour area is able to observe the average noontide.

The Amsterdam port area, measuring 9 km between

the Eastern and Western terminal points, has a quay length of ± 12 km an area of 215 ha navigable by sea-going vessels, and storage room for bulk goods and general goods of 425 000 m². Extensive stacking yards for railway transport to the interior and abroad; electric and hydraulic cranes up to a lifting power of 20 tons; floating grain elevators, coal transporters, coal ships etc. are available in sufficient quantity to secure rapid conveyance. For the storage of grain there is a grain silo of a capacity of 18000 tons. For coal transport there is amongst facilities a storage depot for 100 000 tons of coal with 8 cranes and an elevator with a capacity of 600 tons per hour.

It will appear from the above that the port of Amsterdam is not only equal to the demands of the regular services carried on by the large steamship companies, which all have at their disposal spacious and deep harbours with broad quays and various means of transport, but is also extended for shipping traffic of a different character. The good results of this admirable management of the port are shown by the considerable extension of the harbour traffic, as evidenced by the number of sea-going vessels entering the port, these being in 1913: 2152 of 2 310 400 tons measurement, while in 1929 they amounted to 4000 of 5 686 000 tons.

As the harbour of Hook of Holland is considered the entrance to the port of Rotterdam, so that of IJmuiden is looked upon as the entrance to the harbour of Amsterdam; therefore identical facilities for incoming ships are found there. The harbour of IJmuiden however, differs from the Hook of Holland in so far, as it can only be entered through locks, the new construction of which was mentioned in the chapter on "Water-ways". In addition IJmuiden is an important fishing harbour, of which particulars will be found in the chapter on "Fisheries". In the harbour specially constructed for

the blast furnace industry, ore and coal are imported in considerable quantities; for the second wholesale business, a paper works, timber is imported by sea from Scandinavian countries.

The importance of the port of Z a a n d a m is pre-eminently that of a timber import harbour; there are two sea harbours of a respective area of 5 and 25 ha, and of a depth of 8.50 and 10, connected with the North-sea canal. Zaandam is also an import and trans-shipment harbour for the great rice mills, oil refineries, starch-, soap-, chocolate- and linoleum works along the banks of the Zaan, which have caused the growth of a busy inland shipping traffic. The 20 m wide Wilhelmina lock is the entrance for all vessels coming from Amsterdam; about $\frac{3}{5}$ part thereof load and unload at Zaandam.

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For ocean traffic the port of F l u s h i n g is in many respects of great importance. Being the entrance to the Scheldt, thousands of ships bound for Antwerp, pass here, and in connection therewith Flushing has an extensive pilotage-service and is also the base for the buoys and beaconing of the Wester Scheldt in so far as this is compulsory for the Netherlands. In the second place Flushing is the headquarters of the Steamship Company "Zeeland", with its daily services to England, connecting with the trains from and to Germany. In the third place the Royal Shipbuilding Company "De Schelde" is established there, employing 3000 men and building large passenger-, cargo- and war-ships. To facilitate the expansion of this shipyard a new turnlock has been opened of a width of 20 m, which enables the wharf not only to build modern sea-going

vessels but also to deliver them. In the fourth place, Flushing is a Naval harbour, and in a modest degree a fishing harbour and the starting point of the canal through Walcheren (Flushing—Middelburg—Veere).

With a view to the progressive importance of these various factors, including also the establishment of industries, a large extension of the outer harbour (and like the lock to be completed in 1930) is now being undertaken, England steamers with a draught of 24 feet are already able to bunker in this harbour. Its depth will be increased to 10 m New Amsterdam Level and later to 12 m N. A. L. The railway yard will be joined on to the quay wall which will have a length of 350 m. On completion the harbour will have an area of 35 ha and have an entrance width sufficient for the largest Dutch vessel, measuring 32 000 tons. The inner harbours have a depth of 7 m and a quay length of 800 m.

The traffic of the port of Flushing is dominated by the steamers of the "Zeeland" Company, bunker boats and sea-tugs; further by the Naval and pilot vessels, whilst \pm 10 000 canal boats annually go up and down the Canal through Walcheren.

Terneuzen is the terminal point of the canal which unites Ghent and the Wester Scheldt and is therefore of importance for the navigation to Ghent and for the agriculture of Dutch Flanders. A lock of 17 m width and 8 m depth affords sea-going vessels an opportunity to proceed as far as Ghent, whilst canal harbours have been constructed for such vessels, which load or unload at Terneuzen.

For the Western part of Dutch Flanders the harbour of Breskens is of interest; it is also the terminal point of the steamboat service to Flushing. There are two harbour basins with an entrance width of 65 m, and a depth respectively of 7 and 7.50 m N. A. L. and they are

provided with concrete quays. The sugar beet cultivation especially increases the value of this harbour.

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By the completion of the deepening of the Old Maas to 8½ m, thus giving Dordrecht its own outlet to the sea, its harbour has obtained the significant position, to which on account of its situation, it is fully entitled. This work, costing 12 million florins and completed in 1930, will result in the fact that the largest sea-going vessels will, without any hindrance, be able to sail to Dordrecht, situated at the intersection of four great waterways, giving access to Rotterdam and to Antwerp, to the North Sea and the German Rhineland, in short to the seaport region of Rhine and Maas, for which nature intended it.

In view of this situation, the harbour of Dordrecht, which possesses an extensive industry, is now fully prepared to receive sea vessels for the rapid transshipment into and the towage of Rhine barges, and for the transport into the interior. Both for storage and delivery, modern unloading and loading appliances are available enabling for instance three vessels to be loaded simultaneously from one sea vessel.

The sea harbour has storage space for 40 000 tons of ore or 25 000 tons of coal, four 10 ton loading bridges and two travelling-cranes.

For the Rhine navigation Dordrecht is amongst others provided with 345 tugs; to facilitate transshipment to river vessels the anchorage of the latter is close to the sea harbour. The length of the quay along the river is 2½ km. The Merwede harbour, with a 700 000 m² adjoining an industrial and commercial area, is connected with the river. The trains connect with the lines to Cleve,

by way of Nijmegen, to Antwerp—Brussels, to Dusseldorf via Roermond, to Duisburg and Munich via Venlo. In addition to this Dordrecht is of importance as regards the navigation to Western North-Brabant and Zeeland.

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Of the ports in the North of the country Delfzijl is the most important; it is of special interest to the province of Groningen and is therefore under the administration of this province. There is a considerable importation of barks and sawn timber, of Chili saltpetre and other artificial manures as well as of coal. In addition to a water area of 41 ha navigable for sea-going vessels, there is a timber harbour of 2 ½ ha and a timber boat harbour of 19 ½ ha. The entire harbour mouth covers 85 ha. The harbour equipment consists amongst other facilities of 3 steam cranes, 1 gantry, 4 electric cranes, and sheds having a floor space of ± 6000 m². There is also a motor water boat, equipped for the extinguishing of fire and to assist ships in case of accidents. This year a second railway line to Groningen (via Slochteren) has been opened; the other line runs to Bedum. There are also two water-ways between Delfzijl and Groningen: the Eems canal and the Damsterdiep. Further there is a weekly steamship service to Bremen and Hamburg and daily communication with Emden.

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The port of Harlingen owes its importance to the fact that it is the export harbour for Frisian cattle, meat and dairy produce, as well as for straw-boards exported from Groningen to England and that it is the import harbour for coal from England and timber from

Baltic ports. The newer portions of the harbour are 4.40 m deep, and are provided with quay walls. The General Steam Navigation Company of London runs steamers twice a week, and Wm. Muller & Co. also twice a week from Hull to Harlingen; there is moreover a weekly service from Harlingen to Goole. The improvement of the New Willems harbour will make it possible for more and larger sea-going vessels to enter here, and in connection therewith storage yards are being prepared and loading and unloading installations supplied.

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The port of Den Helder (Nieuwediep) owes its importance almost exclusively to the fact that it is a naval base and that moreover the Naval Air Force has its aerodrome on the island of Texel close by. Den Helder has an ice free harbour, 2000 m in length, 150 m wide and $18\frac{3}{4}$ feet deep, which is also used by the Navy. This year the bathing resort of Kijkduin has been opened.

Whether and to what an extent the port of Den Helder will gain in importance by the draining of the Zuiderzee, as regards commercial shipping, is as yet uncertain.



CHAPTER XXIX.

SUPPLY OF ELECTRIC POWER.

Although the use of electricity for lighting and the supply of power did not at first develop in the Netherlands as fast as elsewhere, yet fairly soon after EDISON in 1882 had inaugurated the first electricity supply station in New-York, efforts were made in our country in the same direction. In the years 1884—1890 generating-stations were established here and there by private initiative. The subsequent period of development was marked by the participation of public corporations in generating electric power by the side of the purely private ones. The supply of electricity came within the scope of the duties of the authorities, and, in the natural course of things, it first devolved upon the municipalities. The city of Rotterdam inaugurated in 1895 a generating plant. The Hague followed suit in 1906, Leiden in 1907, whilst in 1911 the towns of Zwolle, Deventer and Zutphen founded the Joint Stock Company called "The Central IJssel Electrical Works" at Zwolle.

The industry entered upon its third stage when, in the year 1911 the provincial authorities began to realize that in order to provide a more economic supply, the gap left between private and municipal enterprise should be filled. Those concerns which undertook to supply the electric power for the province were with two exceptions joint-stock companies.

After that the supply of electricity made rapid progress. The production of electric power which in 1913 amounted to about 113 million kW, had six years later risen to 428 million kW and had reached round about 1403 million kW in 1928.

From its very nature the supply of electricity, as long as it was left to municipal and private enterprise, had been limited to the areas of large towns and factory centres, where a sufficient consumption was immediately assured. The country districts however lagged behind and the unchecked foundation of central power-plants had also to be kept within limits.

The first act of the Provincial States, in which the provinces of North Brabant and Groningen were the pioneers, was to promulgate electricity ordinances regulating the erection of plants for power and lighting purposes, for which the sanction of the provincial authorities would be required. The majority of the provincial authorities have undertaken the electrification of their own area, both by the purchase of the assets and shares of private undertakings and by the installation of their own generating-stations and networks.

Ever since 1904 the Government has in various ways caused the development of the electricity supply to be studied by State appointed commissions. In that year a first commission was given the task of enquiring whether and if so, what legal prescriptions should be issued or measures taken with reference to the installation and the use of electric lines, both in the interest of public safety, and to regulate the consequences, as regards the law, which might result from such installations and the use thereof.

In 1911 a second commission was appointed which had to answer the question "what measures should be adopted to ensure that the want of electric power existing in various parts of the country and chiefly in country districts, is supplied in as efficacious and economical a manner as possible". A third intervention on the part of the Government was due to the desire of certain parties that prescriptions should be issued which would considerably strengthen not only the position of public works

as regards their rights, but also that of the Government concessionaires. The Act introduced as the outcome of this enquiry was passed in 1918, but was succeeded in 1927 by an Act for the abrogation of private right impediments.

Under the system of Government concessions, by which the supervision of a higher authority was guaranteed, the electricity supply of the larger towns could now be left to the municipalities concerned, and the provincial authorities further provided the supply to the smaller parishes and to country districts. There still remained however the important question, in how far the centralization of the electric power generation in a limited number of central plants should be carried through, with a view to ensuring the most economical production. The Bill, as proposed in 1919 by the Government commission charged with the examination of this question, was not favourably received in the Second Chamber and was withdrawn. This Bill suggested in principle the establishment of a joint-stock company, with the State as principal shareholder; this Company would undertake the production of electric power and the distribution thereof under very high tension.

As no decision had as yet been arrived at with regard to the manner in which the supply of electricity would have to be further regulated, the Government invoked anew the opinion of a State Commission. This commission, nominated in 1921, published its report in 1925, which induced the Government to draft a bill containing general rules with reference to the supply of electricity. In this Bill, which was introduced in 1928, the system of concessions is maintained, but the system of provincial ordinances is abolished, such ordinances being replaced by State regulation. With a view also of creating a guarantee that by the adoption of the concession system,

the freedom of industry will not be too much interfered with, the institution of an Electricity Council has been thought of, such Council to advise the Minister of the Waterstaat, either at his request, or on its own initiative, with regard to all matters connected with the electricity supply of the country.

The above bill has so far not yet been introduced to the States General.

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The supply of electricity in the Netherlands is at present provided by 50 generating-stations which also distribute the power, with altogether 57 electric works. Of these 50 generating stations one is State controlled (the Limburg Mines), and there are 7 provincial, 17 municipal, 2 provincial and municipal, 10 cooperative and 13 private plants.

During 1928 the 57 electrical works generated a total of 1403 kW. The power generators and dynamos had a total capacity of 735 126 kW. At present 935 parishes are supplied with electric light and power, equal to 97 % of the population.

The total of kW generated and supplied to the networks was in 1928 14 000 000 kW. The maximum load was 460 000 kW.



CHAPTER XXX.

POSTAL, TELEGRAPH AND TELEPHONE SERVICES.

The postal service of the Netherlands like that of other countries, is ruled by the provisions of the Universal Postal Union, which apply to the Netherlands as member of the "Union Postale Universelle". Moreover this country joined various conventions the participation in which had not been made compulsory by the Universal Postal Union viz. those relating to letters and parcels with declared value, to the parcel post, to money orders, to the postal cheque and transfer service, to cash on delivery service and to the subscriptions to newspapers and periodicals.

The right given to countries by Article 5 of the Universal Postal Union to make special agreements with others has been used by the Netherlands to enter into agreements with Belgium and Germany for the regulation of the frontier postal traffic.

The Dutch mails are despatched in such manner that a rapid transit is established and that conveyance takes place as economically as possible. To ensure this the number of countries the mails have to cross, must necessarily be limited as far as practicable, as transit dues have to be paid to those postal administrations which render their assistance.

In conformity with above principle, the Dutch postal authorities, as far as transport by sea is concerned, give the preference, irrespective of nationality, to those vessels, which on the basis of the service regulations, guarantee the most expeditious transport of the mails.

The connection between Holland and England is main-

tained by the steamers of the steamship Company "Zeeland" plying between Flushing and Harwich and by the steamers of the "London and North Eastern Railway Company" running between the Hook of Holland and Harwich. On both routes a very busy mail traffic is carried on. In the year 1929, about 335 000 bags of letter mail and 135 000 parcels were conveyed from Flushing to Harwich and vice versa and from the Hook of Holland to Harwich and vice versa 171 000 bags of letter mail and 23 000 bags with parcels.

On board the vessels of the "Zeeland" Company a sea post office has been established, whose task is to sort the mail for the Netherlands, except the direct mails from abroad for Amsterdam, The Hague and Rotterdam.

This country is largely concerned with the so called transit conveyance.

For the conveyance of the transit mail separate mail vans run from Flushing and the Hook of Holland to Berlin and Cologne and vice versa.

The extensive service of the railways, supplied in October 1930 with a service of night-mail-trains in the interior, usually afford sufficient opportunity for the exchange of correspondence abroad. Nevertheless it has been found necessary to carry on a special postal motor service during the night from Arnhem to Emmerich and back, by which it is possible on the one hand to establish connection with the trains, which leave Emmerich in the early morning hours and on the other hand to forward on the mail, arriving by late evening trains at Emmerich, by trains starting from Arnhem.

Special trains are also made use of to obtain rapid connection at Genoa and at Marseilles respectively with the steamers bound for the Dutch East Indies of the "Nederland" and the "Rotterdam Lloyd" Companies.

On these trains post offices have been installed between Amsterdam and Cleve and between Amsterdam and Essen. These railway post offices convey the sealed letter mails prepared by the post offices at Amsterdam, The Hague and Rotterdam and make up in the trains letter mails for the Indian Post Offices, in which they include the correspondence received from connecting trains or late fee correspondence.

In the contrary direction the mail arriving from the Dutch East Indies is likewise taken on by the well known boat trains, which leave immediately on arrival of the steamers at Genoa and Marseilles.

With a view to rapid transport the Dutch postal authorities are naturally giving special attention to the possibility of forwarding the mails by air. They have therefore from the start supported air traffic, by entrusting these mails to suitable European and non-European air-lines.

In order to arouse interest in the air-mail service a uniform air duty of 5 cents per 20 grams has been fixed for all European countries. On some air-routes, letters and postcard are forwarded by aeroplane without payment of a supplementary fee. The interest of the public in the air-mail traffic naturally increases in proportion to the saving of time to be obtained thereby and it is only to be expected therefore that such interest will in the first place take the form of desiring the establishment of communication by aeroplanes with overseas countries. The results of the pioneer flights of VAN DER HOOP and KOPPEN have contributed thereto in no small degree.

In 1928 6 flights were made to the Dutch East Indies, by which on an average 240 kg of mail per flight were forwarded. For the first return flight the influx of correspondence in India was so great, that 252 kg of airmail had to be sent by steamer. The flying machine took

305 kg. In 1929 8 flights were made, by which were dispatched in total 80 000 parcels of correspondence, with a weight of 1800 kilos.

The flights of 1928 en 1929 and which must be regarded as trial flights, have all shown the possibility of the inauguration and practical introduction of a regular air service to Java. It is therefore the intention to increase the now existing fortnightly air service to the Netherlands East Indies to a weekly one in September 1931.

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T e l e g r a p h s. This branch of the Government service is likewise constantly endeavouring to improve the performance of its task, viz. the rapid transmission of telegrams, by the application of the newest inventions in this sphere.

In this connection mention may be made of the alternating current telegraphy. By the application of this method, use is made of currents of varying frequency, thus enabling several telegrams to be sent simultaneously over one telegraph wire. In communications with Germany the system of alternating current telegraphy was introduced already some time ago. Investigations are being made in conjunction with the German authorities to find out in how far this system is capable of extension.

The through connecting system which has been introduced in the Netherlands on a comparatively large scale, aims at avoiding the time wasting receipt and re-transmission of telegrams. At a number of central offices the telegraph wires from the smaller neighbouring offices meet at a junction. If therefore one office has a telegram for another, it only requires the central office to connect the wires of both these offices and without

further interference on the part of the central office, messages may be transmitted.

Telephones. On the subject of telephones mention may be made of the gradual replacement, in the interest of a clearer sound transmission, of overhead wires, which are very susceptible to disturbance, by more reliable underground cables.

The automatic operation of the whole telephone system is also aimed at, which, amongst other advantages, makes the use of the telephone in smaller towns, independent of a relatively limited number of working hours, and renders the service practically a continual one. The automatic telephone will relieve the isolation of rural districts.

Of great benefit to the inhabitants is also the Green Cross through communication regulation. During the time when smaller offices are closed, direct communication is established with the nearest place, where an infirmary exists.

The Netherlands have telephonic intercourse with practically all European countries with the exception of some Balkan States.

In case traffic proves to be of sufficient extent, efforts are made to get as far as possible into direct telephonic communication with the various countries, which generally has the effect of accelerating the service by avoiding the employment of transmission offices in intervening countries.

Wireless Telegraphy. The Netherlands maintain wireless telegraphic communication with: the Dutch East Indies, Surinam, Curaçao, America (New-York) and, as far as Europe is concerned, with Austria, Denmark, Switzerland, Norway, Czecho-Slovakia and Sweden.

Wireless connection with Italy, Spain and Portugal is in preparation.

Wireless telegraphic messages are transmitted by the central control of the telegraph and telephone office at Amsterdam. The transmitting-installations are erected at Kootwijk, the receiving aerials at Noordwijk, both connected with the central office by an adequate number of wires.

The traffic with America is carried on by means of the long wave transmitter P. C. G. That with the East and West Indies by means of the Government owned short wave transmitters.

For wireless communication with European countries, two long wave transmitters are used, of which one is Government owned, whilst the erection of a third transmitter is nearly completed.

The transmission of wireless messages to ships is undertaken separately, both as regards reception and transmission, by the wireless coast station at Scheveningen.

In addition to the ordinary coastal communication with vessels in the North-Sea or the Channel, the Scheveningen wireless installation operates equally on long wave length (undamped) for greater distances, whilst communication by means of wireless stations, installed for that purpose on board of ships may take place on short wave length even as far as Java.

Wireless Telephony. From the Netherlands wireless telephonic conversations may be held with the Dutch Indies, North and South Amerika and Australia. Telephoning to India is done direct by means of short wave transmitters erected at Kootwijk. This service was opened on the 8th of January 1929. At first those who wished to speak with India used one of the telephone boxes, arranged for that purpose, at Amsterdam, while in the Netherlands Indies such accomodations were found at Weltevreden, Bandoeng, Soerabaja and Solo, for those

who wished to speak with Holland. The opening of direct communication between the subscribers on either side occurred on July 1st 1930, as to the Netherlands in general and as to the Indies in fixed cases. The tariff for an ordinary 3 minutes conversation with Java is f 33. The average number of conversations is 15 per working day.

Conversations with any of the cities of the United States, Canada or Mexico are carried on via the British American Wireless connection, the transmission from the Netherlands as far as London taking place along the ordinary telephone line.

With South America (Buenos-Aires) conversations may be carried on both via the German transmitting and receiving installation at Berlin, and by means of the French installation at Paris. Australia is attainable via London.

Experiments have also been made to establish telephonic communication between the shore and vessels at sea.

These have been quite successful so that before long such telephone service will be available to the public on board the steamers of the Zeeland Company sailing to and from England. The possibilities of establishing an identical service for the Indian mail steamers are being examined.

Once a week moreover, useful intelligence regarding the Netherlands and its Overseas Territories is broadcasted in four languages, in which the most important Press Bureaux co-operate. This broadcasting known as the "Voice of Holland", has for its object, to stimulate interest in our country, especially abroad.

Besides the ordinary broadcasting undertaken by various organisations via the two broadcasting stations at Hilversum and Huizen, the Management of the P. T. T. carries on a publicity service for business purposes (by

means of the Scheveningen transmitter) by the broadcasting of news reports, exchange quotations and similar intelligence.

The Post Cheque and Transfer Service has existed in the Netherlands since the 1st of January 1918, on which date it was opened with about 4000 accounts and now comprises over 160 000 account holders and has grown into a flourishing business with a daily cash turn over of about 40 000 000 guilders. The service is centralized i. e. the management, the book-keeping, the carrying out of the daily orders of and payments to the account holders are performed centrally at the head-office of the service. The post offices only act as receiving and paying offices.

Account holders may transfer any part of their credit accounts to currant-accounts, which are kept at a number of foreign post-cheque- and transfer services (at present in Belgium, Dantzic, Denmark, Germany, France, Algeria, Yugo-Slavia, Hungaria, Austria, Czecho-Slovakia, Sweden and Switzerland).

At the request of account holders remittances may also be made from their credit to countries a b r o a d, either by money order, or in Dutch bank-notes by registered letter.



SECTION B. — THE NETHERLANDS
EAST-INDIES.

SECTION B.

THE NETHERLANDS EAST-INDIES.

CHAPTER XXXI.

GEOGRAPHICAL SITUATION AND EXTENSION.

The extensive Netherlands Indian archipelago in Asia, about which the following information was derived from the "Handbook 1930 of the Netherlands East-Indies", covers a surface, sixty times that of the mother country. It extends from the continent of Asia, viz. Further India, to Australia.

The principal groups of the Netherlands Indian Archipelago are: 1st. the Greater Sunda Islands, i.e. Java and Madura, Sumatra, Borneo and Celebes with the adjoining smaller islands; 2nd. the Lesser Sunda Islands, i.e. Bali, Lombok, Sumbawa, Flores, Timor, Sumba, Rotti and several other smaller islands; 3rd. the Moluccas and New Guinea as far as 141° Eastern longitude.

With the exception of a part of Timor, which belongs to Portugal, and a part of North Borneo, which is a British protectorate, the whole of the groups of islands belongs to the overseas territory of the Kingdom of the Netherlands.

The maximum length from West to East (i.e. from Pulu Weh to Humboldt Bay) is 5000 km (about 14 days by steamer), which is approximately equal to the distance from the West Coast of Ireland to the East Coast of the Black Sea. The maximum distance from North to South is 2000 km, which is equal to the distance between the White Sea and Rome.

The total area covered by all the islands of the Archipelago measures 1 900 152 sq. km (34 583 sq. geographical

miles), which equals about half the size of Europe, excluding Russia. J a v a, including Madura, which for administrative purposes forms a unit, has an area of about the same size as the State of New York. S u m a t r a, with the surrounding islands, has an area, which exceeds that of Great-Britain, it is after Java the most important, and after Borneo the largest of all the Sunda islands.

B o r n e o is the largest of all the islands and covers an area of 736 500 sq. km, or 13 404 sq. geogr. miles, of which approximately $\frac{5}{7}$ ths. is Dutch territory. This part is as large as France or Cape Colony.

C e l e b e s, with the small islands in the immediate neighbourhood, covers a surface much larger than the State of Washington. The Dutch territory of New Guinea has about the same area as Japan proper.

GENERAL TOPOGRAPHY, GEOLOGY AND SOILS.

The principal islands of the Netherlands Indian Archipelago are traversed by a central mountain range, which divides the hill districts from more or less extensive lowlands and coastal plains. As to their geological structure the mountains and hills are very complicated. There is in the Archipelago a wide range, from the youngest to the oldest geological formations, and a large variety of deposits, each of which have their own topography and soils.

The mountains above 600 metres in Java, are mainly built up by quaternary and recent volcanic mantle rock, which, generally speaking, consists of volcanic sands, cinders and dust. Under the influence of the warm damp climate, this pyroclastic material easily disintegrates, thus providing soil-types propitious to vegetation. These soil-types include the volcanic ash-soils, the younger lateritic soils and the younger podsollic soils, which are,

generally speaking, very fertile, covering large surfaces. These areas up to an altitude of about 1500 metres, are, parceled out among various cultivations, while from this limit, up to about 3000 metres, the zone of dense virgin forest extends. Wherever the mountains are deforested and the ground is not occupied by the so-called mountain cultivations, such as tea, cinchona, coffee, rubber or European vegetables, extensive grassy plains occur, alternated by low shrubbery.

Wherever the surface of the Java hill country is not covered by *sawahs* (wet rice-fields), dry cultivations take their place, or fruit trees and other useful plants are grown. By dry cultivations is understood, besides tea and coffee, the cultivation of rubber in the first place, and furthermore of rice in non-irrigated fields, cassava, peanuts, tobacco, maize, sugar-cane and agava.

Wherever the hill districts are composed of tertiary marl and calcareous soil, which for instance is generally the case in the North of East Java, the ground for the most part is covered with dense teak forests.

The ancient or tertiary volcanic formation, which mainly occurs in the western part of Java, is covered with a rather old lateritic soil. It is partly terraced for *sawahs*, but also fit for growing cassava, maize and non-irrigated rice, as well as fruit trees, cocoa-nuts, coffee, kapok and rubber.

The *lowlands*, from below 50 to 100 metres, are likewise entirely cultivated. The largest area is occupied by irrigated rice-fields (*sawahs*) where, extending over wide stretches, sugar-cane, tobacco, maize, sweet potatoes, peanuts etc., besides some indigo and native vegetables are grown as rotation crops. On non-irrigated fields cassava, and maize is grown, while in the *kampongs* (native villages) cocoa-nut cultivation is seen to occupy an important position.

In the irrigated parts of the country, a highly developed and efficient system of irrigation has often succeeded in maintaining the fertility of the soil for a considerable length of time.

The other islands of the Archipelago, termed the Outer Islands, are in a far lesser degree occupied by continuous cultivation than Java. Of preponderant importance are, however, the many rubber, tea and Deli tobacco plantations, also the growing of cocoa-nut palms, fibres and coffee, while certain areas are devoted to the winning of oil. We also find in the Outer Islands the periodical cultivation of rice on non-irrigated virgin soils on a considerable scale.

In Sumatra and in Celebes the young volcanic areas, covered with volcanic ash soil, young lateritic or young podsollic soils, are the agricultural land par excellence, as for instance the East coast of Sumatra (Deli tobacco, rubber, tea, oil-palms, fibres); the West coast of the same island (sawah-rice, tea, cinchona, coffee, oil-palms); the mountainous district of Palembang and Bencoolen (coffee and tea); Manado (cocoa-nut and coffee); South Celebes (maize, cocoa-nut and coffee), while Borneo in this respect has least of all shared in nature's gifts.

In Borneo and New Guinea, a vast surface is taken up by the lowlands consisting principally of alluvial and marshy plains, which extend along the coast lines of Borneo and New Guinea. The coast is likewise low, having a fringe of land below the high water mark of the rivers, inundated during a longer or shorter part of the year and extending in some places over 100 kilometres in land. Agriculture (cocoa-nuts, non-irrigated rice-fields, rubber) is practically only exercised on the elevated flood plains and alluvial terraces bordering the rivers. Most of the larger rivers are navigable far inland, even for steamers of considerable tonnage.

CLIMATE.

The whole of the Netherlands East Indies belongs to the tropical zone. The climate of this area is rather uniform, but yet the differences are often important. With temperatures approaching the limit of human endurance, as is the case in the low-lying plains, the great influence of a few degrees is very striking. This liability to differences in temperature involves that, the writer in describing the climate of a tropical country, in the first place should lay stress on the conditions of temperature and especially on the variation in connection with height.

The climate resembles that of the ocean near the equator. High temperature, abundant rainfall, feeble winds and high humidity are therefore the principal features of the climate of the Indian plains. This is, however, only approximately true: the exceptions to the general rule are by no means negligible.

The uniformity of temperature makes all the more prominent the differences between the climate of the higher regions and that of the low plains. Besides the decrease of temperature the climate also changes in other respects. In the mountains cloudiness increases, and at first also the amount of rain. On higher levels cloud formations and rain occur more and more in the afternoon-hours and grow rarer during the night and morning. There is also a change in the intensity of the rains, and, instead of the heavy tropical cloud-bursts, light showers are frequent, the intensity of the rains diminishes, but the total duration of showery weather increases.

In the plains, in consequence of the difference in temperature between land and water, which is caused by the alternate heating and cooling by day and at night, there exists a regular succession of land- and sea-breezes, the

latter being, as a rule, by far the stronger. The monsoons are generally rather well developed in the plains.

On the plateaus rainfall and cloudiness are usually less than on the mountain-slopes facing the plains. A peculiar phenomenon is the higher level of the cloud-base; consequently on the plateaus fog in the afternoon is much less frequent than on the slopes, where, on the contrary, the clouds dissolve sooner in the evening. The nightly temperature minima are low and frost and morning fog are by no means rare.

The Temperature is fairly uniform during the whole year, e. g. at Batavia: July and August $25^{\circ}.8$, January and February $25^{\circ}.3$ C. The temperature becomes comparatively high twice a year in the monsoon changes, shortly after the sun has passed the zenith.

A yearly amount of less than 1000 mm rainfall is a great exception. Very abundant rainfall (more than 3000 mm) is observed in several mountain regions of Java, Sumatra, Borneo and Celebes. The smallest amount on record is 530 mm (Palu), the highest amount, 6829 mm, is measured at Kranggan (Java) in the mountain-saddle West of Mount Slamet.

When leaving the equator and approaching Australia, one sees the distribution of rainfall over the year changing more and more. A division into a dry and wet season becomes apparent, which is most clearly marked in the extreme South-East. The Eastern monsoon is the dry, the Western monsoon the wet season.

In the Malay Archipelago the trade-wind system of the tropical oceans is disturbed by the influence of the continents of Australia and Asia, which in the summer of their respective hemisphere draw the air from the opposite hemisphere across the equator.

In January, February and March, Northern winds prevail. In April the direction changes to SE in the Southern

parts. In May Southern winds prevail everywhere, which blow in a nearly opposite direction to that of the winds in January and February. This windsystem lasts several months increasing in steadiness and strength up to July or August, decreasing up to November, when the variable wind of the monsoon again prevails. In December Northern winds are again most frequent and the character of January is resumed anew.

Usually the strength of the wind does not exceed that of a gentle breeze.



CHAPTER XXXII.

POPULATION.

The Netherlands East Indies provide the picture of a country which is inhabited by the most divergent races and peoples. The legal division into Europeans (and those assimilated with them), Foreign Orientals and Natives only give a very superficial insight into the actual composition of the population.

This composition according to nationality, as per Dec. 31st. 1927, was altogether 51 563 664 Natives, 207 785 Europeans and 1 053 120 Foreign Orientals.

Racially, the native tribes of the Netherlands East Indies can be divided into Malays in the West and Papuas in the extreme East of the Archipelago.

The Proto Malay element predominates among the Bataks and Gajus (the inhabitants of Tapanuli and S. Acheen), the inhabitants of the islands to the West of Sumatra, part of the Dayaks of Borneo and the Toradjas of Mid-Celebes. Their characteristics are: comparatively small in stature, inclined towards dolichocephaly (small headedness), a broad face with broad nose and lank hair.

The Malay element is most strongly represented among the so-called Coast Malays (East Sumatra, Rhio Archipelago, West Borneo), the inhabitants of Java, Bali and West Celebes. They are small in stature, brachycephal (broad headed) and stiff-haired, while the nose and face are less broad than with the Proto Malays. The typical Mongolian eye is unmistakably present in many of them.

The Papuas of New Guinea have a character of their own, notwithstanding their admixture with neighbouring races (Melanesians etc.). Their dark skin and

frizzy hair bears some resemblance to the negroes of Africa. Both in the Moluccas and the most Easterly of the Lesser Sunda Islands, an influx of darker, frizzy-haired elements is noticeable.

The island of Java is populated in the West by the S u n d a n e s e, in the middle by the J a v a n e s e, while the Eastern part of the island is inhabited, for the greater part, by Madurese, who have immigrated from the island of Madura. In addition to their languages, these three races possess fairly wide divergencies of character.

North Sumatra is inhabited by A c h i n e s e, previously renowned as pepper planters, the Gajus, who still live in genealogical communities, and the B a t a k s, who inhabit the plateaus around Lake Toba.

In the South of Sumatra we find the R e d j a n g- and L e b o n g- and the L a m p o n g peoples, while the Residency of Palembang is mainly inhabited by so-called Mid-Malays who, in the course of centuries, have been subjected to Javanese influence, like the coast population.

The M e n a n g k a b a u s of the West coast of Sumatra are of a higher standard of civilization than these races. This powerful and intelligent people, contrary to what is experienced in other parts of the Archipelago, is quite capable of holding its own, in trade, against the Chinese.

The name C o a s t M a l a y s indicates not only the tribes who live on the coasts, but also those of the interior of the East coast of Sumatra, Djambi, Palembang and the Rhio Archipelago.

The sparsely populated island of Borneo is inhabited by various D a y a k tribes. As collectors of forest products and as predatory cultivators, they often lead a half nomadic existence.

In the South of Celebes we find two tribes, the M a c a s s a r s and the B u g i n e s e, who are, closely

related to each other and differ practically only in language. The Toradjas, who live to the East and the West of Lake Poso in Mid-Celebes, consist of fairly primitive tribes, who by predatory cultivation lead a poor existence. North-Celebes is inhabited by the Minahassas, a rapidly developing people, which has been almost completely converted to Christianity.

Of the inhabitants of the other islands we will only mention here the Balinese who, culturally, belong to the most cultured races of the Archipelago. Artistically inclined, the Balinese have won great fame by their arts and crafts.

The significance of the Westerners for the Archipelago and the role which their activity, capital and energy, their technical and organizing capacities has played and is still playing in the development of these islands, is already well known. That the prosperity of this colony is mainly due to the Hollanders appears from the fact that, according to details collected during the census taken in 1920, of all the Europeans living in the Netherlands East Indies and those assimilated with them, 94 % in Java and Madura and 78 % in the Outer Islands were of Dutch nationality. For the Germans these figures were respectively 1.4 % and 4.5 % and for the English respectively 0.7 % and 2 %. The more international character of the Outer Islands is explained by their later development, whereby foreign capital could be invested to a greater degree; in this connection special mention may be made of the agricultural district on the East coast of Sumatra.

By far the greater part of the Foreign Orientals consists of Chinese (in 1920: 92.52 % in Java and Madura and 92.3 % of them in the Outer Islands), who are encountered everywhere and who in many ways form an integral part of the Indian economic life.

As intermediate traders, they form an essential link between the European importers and the Native consumers and both the fixed and the itinerant retail trade is practically entirely in their hands, except in very large towns.

Notwithstanding the prestige they command among the natives as originating from the Holy Land of Mahomed, the *A r a b s* in the Archipelago play a comparatively insignificant role. They are often engaged in the retail and coasting trade.

The population of the N. E. Indies, which in October 1930 amounted to a total of 60 044 154 souls, is very unevenly distributed over the various districts of the Archipelago. In Java and Madura, in which islands at that date no less than 41 563 460 souls were living, representing an average density of about 328 persons per square kilometre, there is an increasing danger of overpopulation. Practically the whole of Java is already under cultivation and only the extreme East of the island (Besuki) still offers some possibilities for the development of the agricultural area.

The Outer Islands provide a striking contrast to the above. With a total population of 18 480 694 souls, the average density is only about 9 per square kilometre. Extensive forests and other waste ground occupy a large part of these islands, while the European plantations established there are dependent on labour imported from Java or from abroad.

There is, as yet, no question of a strong concentration of the population in t h e t o w n s of the N. E. Indies. Even in Java the rapidly increasing population has so far been able to find an existence in agriculture and is therefore mainly to be found in small villages of at the most a couple of thousand inhabitants. The number of large towns is therefore very limited.

On the 7th. of October 1930, Batavia numbered 437 071, Samarang 216 389, Sourabaya 312 507, Bandoeng 166 617, Djokjakarta 136 554, Surakarta 163 013, Medan 77 865 and Macassar 57 000 inhabitants.

As to the over population of Java, it is very clear how important the steps are, which the Government is taking to increase the productivity of native agriculture. Under the leadership of the Agricultural Information Service (of which further mention is made in another chapter) a gradual intensification of the rice culture is being effected, while in addition the cultivation of commercial products is occupying a more important place than ever in native agriculture.

Attention has been repeatedly drawn to the benefit which would result from the emigration of Javanese to the sparsely populated districts of the Outer Islands. Movements in this direction have also been made by the Government. The Residency of the Lampong-Districts (South-Sumatra) is now populated by about 22 000 Javanese, who live there in typical Javanese fashion, in villages of their own. Encouraged by the success of this first experiment, the Government has decided in later years to establish similar colonies in other parts of Sumatra, in which now more than 9000 people from Java have settled down and which are slowly but favourably developing.

IMMIGRATION.

The immigration, which is controlled by a special service, is subject to a few conditions, but, generally speaking, very few difficulties are placed in the way of a visit or residence in the Netherlands East Indies.

Admission is refused to persons not in possession of a

vised passport or a safe-conduct, who are not in a position to provide for themselves and their families.

A few of the most important immigration formalities are briefly mentioned below. Disembarkation may only take place in certain ports; in Java and Madura these are Tandjong Priok, Samarang and Sourabaya. In the Outer Islands there are 21 approved ports, of which the principal are: — Belawan (Deli), Bengkalis, Palembang, Pontianak and Macassar.

Before proceeding ashore a landing permit should be obtained, which is also valid for the wife and the minor children. This landing permit is issued on board against payment of the stamp duty, amounting to one hundred guilders. Hollanders are not required to pay this duty. This immigration fee is refunded in case travellers leave the Netherlands East Indies again within 6 months, and in case one is refused admission. Those who have received a landing permit are required to present this permit to the Secretary of the Immigration Commission, immediately after arrival on shore, in exchange for an admission card. The landing permit issued to 1st. and 2nd. class passengers of ships belonging to shipping companies indicated by the Government, serves as admission card.

This card gives the lawful owner the right to stay in the Netherlands East Indies for a period of two years; this period can be twice extended for a period of one year and, for a third time for a period of six years, by the Chief of the Local Government of the residence of the holder.

Persons, who desire to establish themselves in the Netherlands East Indies, must obtain a residence license before the expiration of their admission card.

If they reside in Java and Madura, the stamped application must be sent in to the Governor-General through the intermediacy of the Head of the Province and, in the

Outer Islands, to the Head of the Province through the intermediacy of the Head of the Local Government. The residence license expires if the holder remains outside the Netherlands East Indies for longer than 18 months, — special circumstances excepted.

The above-mentioned immigration rules are not applicable to those whose voyage is not ended upon arriving in the Netherlands East Indies. Those who only wish to make a temporary stay in the country (e.g. tourists) are usually included in the latter category.

PUBLIC HEALTH.

When taking the average yearly death-rate as a basis for making comparisons, one comes to the conclusion that the sanitary conditions in the N. E. Indies contrast favourably with those of other Asiatic countries. As far as the native population of Java and Madura is concerned, this figure is 20⁰/₁₀₀; for British India it is 30⁰/₁₀₀; for the Philippine Islands 23 ⁰/₁₀₀ and for Malacca 32 ⁰/₁₀₀.

These comparatively favourable conditions are due to the unrelenting vigilance of the Government, which especially became prominent when, in the year 1911, a special service was organised, which in later years was called the Public Health Service, belonging to the administration of the Department of Education and Worship. Whereas it appeared that the number of European medical doctors was by no means sufficient to supply the needs of the extensive population, a beginning was made in the way of training a native medical staff. Gradually medical education extended, until finally a Medical University was erected in Batavia. A considerable share of the task done by the Public Health Service is actually carried out by native doctors, while a large part of the lower

staff is likewise recruited from the native population.

The main and most important duty of the Public Health Service consists in combating endemic diseases.

Doubtlessly malaria is the worst scourge to which the inhabitants of these islands are subject.

An annual mortality of 100 ‰ and even higher, is by no means an exception in malaria-stricken districts. Although a general distribution of quinine among the entire population of the village does yield favourable results within a short space of time, yet preventive measures are indispensable in order to improve the general hygienic conditions of the population. Consequently, in 1924, a Central Bureau for malaria research-work was established, which is working in co-operation with the Section of Sanitation, belonging to the Public Health Department.

By filling up pools, raising and draining areas, as well as throwing petroleum in mosquito-breeding places, or otherwise treating these with larvicides such as Paris Green, favourable results could already be obtained. Thus in Kampong Kodja (Tandjong Priok) the death-rate dropped from 83 ‰ in 1921 to 38 ‰ in the year 1926, thanks to efficacious disinfecting of the gutters which swarmed with mosquito larvae.

Another important work of sanitation on the North coast of Java has been the making of dikes round salt water fish ponds and establishing the communication between these and the sea. It is obvious that the larvae cannot remain alive owing to the action of the tides. These measures yielded splendid results, e. g. in Probo-linggo, where in some "kampongs" situated in the near vicinity of fish ponds, the splenic index declined from 100 in 1921 to 9 in the year 1927. Good success has also had the re-forestation of the river-banks.

The most wide-spread disorder belonging to the class of worm diseases, is the hook worm disease, which occurs in numerous places of the Archipelago, while the existing habit of defecating in the near vicinity of dwellings is a continual source of infection. Since the last three years attempts have been made to prevent the disease as much as possible from spreading by endeavouring to educate the people in following more civilized habits and teaching them the use of latrines.

The efficient and orderly method of storing all the movables, as well as the introduction of more light into the dwellings, have yielded satisfactory results, on condition, however, that inspections are held at regular intervals. This work was accomplished at the cost of considerable financial sacrifices.

Although compulsory vaccination does not exist in the N. E. Indies, yet the Medical Service has done its best to establish it in a thorough and systematic manner. Every "kampong" is visited once every seven years by a competent vaccinator. The population is made to gather by the help of civil officers, and afterwards vaccinated en masse, within the space of a few days. Special tours of inspection are organised for vaccinating babies.

As a result of this systematic campaign against small-pox, the ever-recurrent epidemics of this disease, which used to devastate entire villages and districts, are actually a thing of the past. No more than 11 deaths, of small-pox, were reported for the year 1928 in Java and Madura.

Among infectuous intestinal diseases, we mention cholera, enteric fever, as well as amoebic and bacillary dysentery, against which the inhabitant of the tropics has especially to guard himself. This Archipelago is constantly threatened with infection from Singapore and other Asiatic ports, as well as the yearly mass of returning pilgrims from

Mecca, who in the course of their pilgrimages constantly come in contact with co-religionists from countries where cholera is endemic. The degree in which western methods of combating diseases is appreciated by the native population is best illustrated by the fact that from a total number of inhabitants of 360 000 (Batavia and suburbs) 235 611 had themselves vaccinated without any compulsion. The result was that the epidemic was limited to 9 cases only, the last occurring on the 1st. of December 1927. After this date no more cases of cholera have been reported.

The number of lepers in the entire Archipelago may be estimated at some 50 000. Compulsory isolation does not exist here, although measures in this direction have been in the course of preparation for some time already. With this object in view the increase of the number of leper hospitals has been energetically taken in hand. There are now altogether 43 of such institutions in which 3800 patients are getting treated.

Thanks to the discovery of Eykman, in 1891, the period that beri-beri claimed its victims by the thousands is actually a thing of the past.

As an essential item in efficiently combating popular diseases, we mention the special institutions occupied in making scientific researches as to the causes and origin of these diseases in general, and in studying all the factors which affect their development either favourably or unfavourably. The pivot of this research-work is the Central Medical Laboratory in Weltevreden, which is subdivided into a section for hygiene, bacteriology, parasitology and tropical physiology, as well as a section for chemistry, pharmacology and toxicology; moreover a special section for malaria was instituted in the year 1926. In Samarang, Sourabaya and Macassar there are smaller provincial laboratories.

An experimental station for the purification of water was erected at Manggarai (near Batavia) in the year 1922, while finally the Pathological Laboratory in Medan occupies a special position, because contrary to the abovementioned Government institutions, this one is privately owned.

The Government Vaccine Institute in Bandoung can easily stand a comparison with the largest of similar institutions in the world. It has sufficient capacity to provide the entire Archipelago with the necessary vaccine; during the last 10 years a quantity of vaccine for an average of 9 million vaccinations has been annually provided while in the year 1927 this figure was no less than 12 million.

The Pasteur Institute attached to this institution, enjoys a world reputation owing to its brilliant successes in combating rabies, and whose task it also is to prepare vaccines and sera against cholera, enteric fever, meningitis, dysentery, as well as other diseases.

Hospitals are established in nearly all chief cities, as well as in many other towns. There are altogether 3 large Central Government hospitals with well equipped laboratories, operation- as well as Röntgen-rooms etc., situated resp. in Weltevreden, Samarang and Sourabaya.

Furthermore there are 8 provincial, 5 municipal, 85 small Govt., 84 subsidized hospitals, 3 sanatoria for tuberculous patients, and 219 private (mostly estate) hospitals.

EDUCATION.

The problem of education has always been a complicated one for the Government of the Netherlands East Indies to solve.

In taking account of the needs of the different groups which constitute native social life, for the first time a diffe-

rentiation was made in this respect in 1893, when a reorganization of instruction for natives was taken in hand, and a hard and fast line was drawn between first and second class schools. Gradually the first class schools developed into the so-called Dutch-Vernacular schools, while the second class schools imparted native primary education in the centres of industry and trade (standard education). These schools generally consist of 5 scholastic years, although of late a 6th year, with a curriculum giving the option of commerce or agriculture, was added to some twenty of these schools.

The desire of establishing general and popular education with the shortest possible delay, lead to the establishment, in the year 1906, of municipal popular schools ("desa" or village schools) founded and kept going by village communities, supported by the Government in the shape of thumping subsidies. Although these were very elementary schools (with a 3 years course of instruction), yet they perfectly satisfied the primitive intellectual wants of a simple rural population.

In 1915 the link between the village schools and Government native elementary education was established by the organization of so-called continuation classes.

The schools for European pupils, entirely cast in Western mould, concord with similar schools in Holland, so that a proper correspondence is at all times guaranteed and a periodical leave of absence to the mother country need in no ways interfere with the education of the children. Although the schools, adapted to the needs of colonial life, naturally diverge from the curriculum of Dutch schools in Holland, yet they have adopted the same standard, consequently students who have gone through these schools enjoy the same advantages, as far

as their appointment in Government service or further instruction is concerned, as students from corresponding schools in the mother country.

In spite of all the obstacles in this field of work, the result has been by no means insignificant.

As to the adults according to data, collected by the census for the year 1920, in Java and Madura 96 % of male Europeans and 92 % of the women could be numbered among the literate, while 6.5 % of the male portion of the native population and 0.5 % of the women were able to read and write, and for foreign Orientals the proportions were 58 % and 8.5 % resp. For an Asiatic country these figures are by no means unfavourable. In the Outer Islands the percentages were resp.: for Europeans 96 % and 90 %, Natives 12 % and 3 %, foreign Orientals 29.5 % and 6 %.

The instruction in "Kindergartens" in the N. E. Indies is mainly left to private persons who enjoy a Government subsidy. Bandoung has a Government school specially for training Kindergarten teachers.

The total number of schools established in the N. E. Indies during the year 1928 amounted to 17 611 with a native vehicular language (14 702 Government and 2909 private schools), which were frequented by 1 513 085 pupils.

Western education is given in 3 different types of elementary schools: European, Dutch-Chinese and Dutch-Vernacular schools, each with a 7 years' course. Promising pupils from the lower classes of secondary schools are given an opportunity to follow higher instruction, where Dutch is the vehicle, by way of the so-called link-schools; thus instruction in this language is one of the main branches taught in those schools.

At the end of the year 1928 there were 786 schools in the N. E. Indies where Dutch is the vehicle (473 Govern-

ment- and 313 Municipal and private schools) attended by 146 275 pupils (37 599 European, 81 281 Native pupils and 27 395 foreign Orientals).

In the N. E. Indies continued secondary instruction is imparted in a type of school, called *G e n e r a l S e c o n d a r y S c h o o l*. The so-called "Mulo"-sections (continued primary instruction) have a 3 years' course. In the year 1928 there were 59 schools of this type.

The public "Mulo"-section of the General Secondary Schools gives admittance to a so-called "superstructure", a course likewise lasting 3 years, where chiefly preparatory higher instruction is given.

These schools, which are adapted to the wants of home-born students (more specially Natives and Chinamen) are organized on the same level as the Dutch schools for Continued and Preparatory Higher Education, and as such they also give admittance to the Universities and High Schools in Holland. Altogether there are 8 General Secondary Schools (6 public and 2 private ones), 7 Secondary Schools with a 5 years' course and 7 Secondary Schools with a 3 years' course. With one exception only, these Secondary Schools with a 3 years' course are intended for the education of girls. For the greater part they are private institutions subsidized by Government.

Corresponding to the primary- and continued primary education, there are a number of schools in the N. E. Indies, which offer the opportunity to pupils of all nationalities to train themselves for *s o c i a l p r o f e s s i o n s*. In this connection we mention the training colleges for civil officers, the different kinds of training schools for teachers, schools giving a medical-, agricultural-, veterinary-, commercial- and technical education etc.

Corresponding to the western primary schools there are 4 Technical schools with a 4 years' course for mechanical, architectural and mining experts.

To the technical and professional schools established in the N. E. Indies the following belong: 16 Native schools (and 12 branch schools) with a 3 and 2 years' course and 17 Private professional schools (i. a. organized by clerical organizations or private enterprises such as sugar mills etc.) generally with a 3 years' course.

There are 3 institutions giving university training in the N. E. Indies, viz., a Technical-, a Law- and a Medical school. These faculties have adopted the same scientific standard as similar faculties and universities in Holland.

The Technical College in Bandoung has a course lasting 4 years. On the 31st. of December 1928 it was attended by 75 students (50 Europeans, 20 Natives and 5 Chinese).

The College for Jurisprudence has a course, lasting 5 years. At the end of 1928 the number of students amounted to 138 (40 Europeans, 75 Natives and 23 Chinese).

The Medical College (with a 7 years' course) was opened in Weltevreden in the year 1927. This opening resulted in the gradual abolishment of one of the two secondary professional schools for doctors. The number of pupils in the two medical schools (Weltevreden and Sourabaya) amounted to 410 in the year 1928. On the 31st. of December 1928 the number of pupils attending the Medical College amounted to 46, viz., 14 Europeans, 17 Natives and 15 Chinese.



CHAPTER XXXIII.

GOVERNMENT.

The basis of Government are the Constitutional Act of the Kingdom of the Netherlands and the N. E. Indies Government Act.

The Dutch legislator is at the same time the supreme legislator for the four integral parts of the Kingdom; that is to say, the legislator having his seat in Holland, and composed of the King (Queen) and the States-General. This legislator can reserve to the Crown the regulation of certain subjects concerning the N. E. Indies (Order in Council).

The N. E. Indian legislator is empowered to deal with the internal affairs of the N. E. Indies in as far as the Constitutional Act or Statutes laid down by Dutch legislation do not determine otherwise (Ordinances). The limit of the scope of authority of Dutch legislation (in Holland), and N. E. Indian legislation has, in the course of years, undergone a change. A very important step has been taken in the direction of self-government in the N. E. Indies.

Nevertheless the Dutch legislator is charged with the supervision of the measures laid down by N. E. Indian legislation, apart from his authority in general to regulate all subjects, which authority, as a rule, is only resorted to in those cases where the Constitutional Act of the Kingdom expressly requires provision by that body.

The highest legislative measure in the N. E. Indies is the "O r d i n a n c e", passed by the Governor-General with the assent of the "V o l k s r a a d" (Legislative Assembly). This Legislative Assembly, established in 1916, and having its seat in Batavia, met for the first time in 1918. Originally intended as a purely advisory body, it was turned into a legislative body whose assent, for all

ordinances presented by the Governor-General, is required. It further possesses the right to amend bills and pass on private members' bills, the right to petition the King and the States-General, and to interpellate the Government. The President is nominated by the Crown, and the members — 61 in number, including the President — are partially nominated by the Governor-General, and partially elected from three groups of Dutch subjects. The distinction between these groups is as follows: (1) Hollanders, (2) the native population of the N. E. Indies, (3) subjects of foreign origin. Of the sixty members thirty are Hollanders, twenty-five natives, and five subjects of foreign origin. In 1929 an amendment was enacted, according to which at the next periodical election in 1931 (the election takes place every four years) the native members will occupy thirty of the sixty seats.

The extent of the Archipelago's territory, and the curious social composition of the N. E. Indies, has led to the institution of a Committee of Delegates; a Committee elected by the Legislative Assembly from its members according to the principle of proportional representation. The claims of Government demand that no delays arise in the work of legislation, but a continued session of the Legislative Assembly during the whole year is impossible on account of the circumstances already mentioned.

For the execution of the Acts of Dutch legislation, Orders in Council or Ordinances, the Governor-General lays down general regulations in as far as this power is expressly given to him, and these are called "Regulations of the Governor-General".

The Crown is empowered to provide, by an Order in Council, for cases where no agreement has been come to between the Governor-General and the Legislative As-

sembly, even after a repeated presentation of the Bill to the Legislative Assembly.

In the exercise of his legislative power the Governor-General is assisted by an advisory body: the Council of the Governor-General. This body, of which the Governor-General is President — although as a rule he takes no part in the conferences — consists of a Vice-President and six members (including two native members) nominated by the Crown.

Where the Netherlands East Indies form one of the integral parts of the Kingdom, the supreme executive power naturally rests with its Head, the King (Queen). The East Indies are governed in the King's (Queen's) name by a Governor-General nominated by the King (Queen).

As regards executive power, and especially the policy to be followed, the Crown can give the Governor-General instructions, according to the stipulations of the N. E. Indian Government Act, which instructions he has to follow. In reality the broad lines of the policy are in the hands of the responsible Dutch Minister of the Colonies, the organ of Royal authority, who, according to the foundations of the parliamentary system, cannot run counter to the views held by the Dutch Parliament, so that, finally, the States-General determine the policy to be followed.

The task of Government is divided between seven Civil Departments, viz., of Justice; Civil Service; Finance; Education and Worship; Agriculture, Industry and Commerce; Public Works, and Government Industries; furthermore two military Departments, viz., the Department of War and the Naval Department, at the head of which are the Commander of the Army, and the Admiral of the Fleet respectively.

To assist the Governor-General in the handling of the Government correspondence and the working out of his

decisions, a Cabinet is given to him, called "Algemeene Secretarie" (Secretariate General).

In a political sense the N. E. Indies are divided into territories directly governed and self-governing territories; these latter are ruled over by Native Princes who govern more or less independently. The Native States are of special importance in the Outer Islands where, of the 14 million inhabitants, six million live within such a territory. In Java, on the other hand, only 7 % of the territory is occupied by Native States, viz., what is called "Principalities" ("Vorstenlanden").

The aim of the N. E. Indian Government is to maintain the Native States as far as possible, and develop them, so that they are only incorporated in directly governed territories, when this is inevitable in the interests of the population. If possible, small unimportant States are united to form a bigger and richer State, and in order that a proper development of the country and its inhabitants may be secured, the Government exercises supervision through its officials.

Until a short time ago, the whole territory of the Archipelago, including the Native States, was divided, for the purpose of Civil Service Administration, into "gewesten" or provinces.

A Dutch official is the Head of the province, who is called "Gouverneur", "Resident" or "Assistent-Resident", according to the importance of the locality he governs, but their authority is the same. Those officials represent the Government, and exercise in as far as that is compatible with the powers of the Native States in their jurisdiction, the highest civil and financial administration, and control of the police. The provinces are divided into divisions, at the head of which stand "Assistent-Residents", assisted by a "Controleur". In the Outer Islands these divisions are

again divided into subdivisions, with a "C o n t r o l e u r" or "G e z a g h e b b e r" at their heads (civil administrator). All the officials mentioned are Hollanders who, with the exception of the civil administrators, form part of the Dutch corps of the N. E. Indian Civil Service. They receive their training in Holland at the Universities of Leyden and Utrecht. The administrators, on the other hand, are trained in Batavia at the School for Civil Servants. The services of the administrators are made use of for the Outer Islands, where they are charged with the management of an "o n d e r a f d e e l i n g" (subdivision).

From the commencement of the establishment of their power, the Hollanders realized that the native population should be left under the direct government of their own chiefs, in as far as this was possible in the execution of authority, and with that end in view the provinces are also divided into districts under native jurisdiction.

The Residencies in Java and Madura are thus divided into "Regencies" (R e g e n t s c h a p p e n), the head of which is the highest native official called the "R e g e n t" (B u p a t i); these Regencies are subdivided into districts, which in their turn are again divided into sections, with lower native officials as their heads. The Regents are nominated by the Governor-General, generally descending from old distinguished families, and often in the hereditary line. The Native Civil Servants receive their training at special schools in Java.

Following up the forms of government founded by the Dutch, at the establishment of their power, native communities (desa's) have been maintained in their original form all over the Archipelago. The revenues from the community flow into the community Exchequer, and the moneys needed for the various local purposes are defrayed from it. Sometimes, in the Outer Islands, native village

councils, comprising chiefly "A d a t h o o f d e n" (native chiefs according to customary law) have been put at the head of these corporations, in as far as their autonomous duties are concerned.

In larger centres with a mixed population the "Local Councils" Ordinance regulates the local Government.

There are now 32 municipalities established, governed by their own Councils, and 15 provinces each governed by a Council. Especially the development of the towns has been rapid, thanks to the powers given to the Councils to make by-laws and levy taxes.

The institution of "P r o v i n c i a l C o u n c i l s" has been made possible by an Act of 1922. This Act contains regulations ensuring the institution, by an Ordinance, of larger provinces, which in a certain measure are self-governing; these provinces comprise several former "Residencies". Where these larger provinces are instituted, the old division of the territory disappears, and simultaneously local government within their jurisdiction is readjusted.

At the head of the Province is the Governor who is at the same time the organ of the Central Government and of the self-governing Province. He is the President of the Provincial Council, and President of an executive body appointed by that Council, which is styled "Committee of Deputies". The Governor, however, as a Government organ, is further charged with the supervision of the functions of the Provincial Council and the above-mentioned Committee.

The Provincial Council possesses the authority and powers granted to all other representative bodies through local government: in general those of regulating and administering all matters affecting the Province; more especially of making by-laws, which carry penalties, of levying taxes, due from various sources, and of passing the budget.

The specific needs of some parts of the N. E. Indian Archipelago led to the possibility of instituting non-self-governing provinces. Where the development of the population does now permit the establishing of a representative body, governorships will be instituted; sometimes geographical conditions impede the instituting of a "Council" which should meet several times if it is to have any significance. A beginning has already been made to establish a governorship, as signified here, through the institution of the "Province of Moluccas".

The new laws give the opportunity of establishing, by ordinance, within the boundaries of the self-governing provinces, self-governing local units. These towns are called "S t a d s g e m e e n t e n".

The Mayor is appointed by the Governor-General; he is the President of the Municipal Council and of the Executive Committee chosen out of that Council, called Mayor and Aldermen's Committee. Smaller towns do not possess such a Committee. The Mayor is the Head of the municipality and its Representative, but is nevertheless a servant of the Government.

After the establishment of the first self-governing province West-Java, the institution of self-governing local units has also been resorted to in the B u p a t i's districts (regencies), according to the old style the largest territories under native administration. The B u p a t i is now President of the "Regency's Council", a body partially appointed by the Governor of the province and partially elected, and composed of the representatives of the three groups, only that the natives have a majority therein. The Committee of Deputies can form an executive committee, whose members are elected by the "Regency's Council" from their midst, and of which the B u p a t i is the President. The R e s i d e n t s are charged with the supervision of the self-governing regency.

Other self-governing bodies are the "Irrigation Board", after the example of the Dutch polders. Their power to make by-laws, which can be granted by ordinance, is restricted by the scope of the interests entrusted to them. Those interests may be considerable, including as they do the provision and distribution of water for agricultural purposes, chiefly rice and sugar-cane cultivations.

As regards residents of oriental origin, viz., Chinese, Arabs and British Indians, the Government has appointed for each group special chiefs, belonging to the respective nationality, and bearing the titles of Major, Captain, Lieutenant, and Head of a Ward. They are subordinate to the Civil Service officers, and are merely a link to bring forward special needs of the several groups and to carry out the stipulations of the Government.

JUDICATURE.

The division of the population of the Netherlands East Indies in groups of Europeans, Natives and Foreign Orientals also influences the judicature.

For Europeans the civil, commercial and penal codes are almost identical to those in the Netherlands. Deviations therefrom are only to be found in those cases where typical Indian conditions make these desirable.

The same penal code as for Europeans is applicable to Natives and foreign Orientals. As regards the civil code, it has been accepted in principle, that they are also subject to the same code as the Europeans, in so far as their social needs require it, whilst for the rest their "a d a t" (customary) law is respected as much as possible. This principle being applied to, the Chinese population in the whole of the Archipelago are subject to a regulation, which hardly deviates from the code for Europeans, as far as civil and commercial law is concerned. The other

foreign Orientals, also in the whole of the Netherlands East Indies, are subject to the European Property Law, but their family rights are still ruled by their customary law.

Justice is administered, in the case of Europeans, by jurists, except in some districts for trivial civil cases and offences. The European Courts of Justice and tribunals also pass sentence in civil and commercial cases against Natives and foreign Orientals, if for the affair concerned they are subject to European law.

Government jurisdiction is the rule for Natives and foreign Orientals in provinces under direct Government.

Native jurisdiction exists in self-governing provinces and also in some districts of directly governed territory, which, however, extends only to the actual subjects of such self-government.

Europeans and foreign Orientals in *civilibus*, as far as they are subject to European jurisdiction, are tried at one of the Courts of Justice, three of which are established in Java, two in Sumatra and one in Celebes. Appeal to a higher tribunal can be made at the High Court of Justice of the Netherlands East Indies, which has its seat at Batavia, and supervises the whole administration of Justice in this country. Small civil affairs are settled by the Residency tribunals, presided over by the local president of the District Joint Court.

Foreign Orientals, as well as Natives, stand their trial at the District Joint Court, in cases of criminal offence.

The District Joint Court also administers justice in civil cases to the native population and to foreign Orientals, as far as these have not submitted to the European jurisdiction. The presidency over these courts is exercised in Java and Madura by a judicial official, and in some districts of the Outer Islands by a Civil Servant. Members of these Courts are Native Headmen, whilst an advisor of the race, or of the religion of the accused, sup-

plies him with the necessary information. Appeal can be made to the Courts of Justice.

Justice is administered to all groups of the population in Java and Madura, for smaller offences by the Cantonal Courts, and in the Outer Islands, where the Cantonal Courts have not yet been introduced, the Magistrate Courts have this qualification for Natives and Foreign Orientals, whereas Europeans in such places are tried for small offences by the Residential Court.

Against natives small civil affairs and offences are tried in Java and Madura by the Regency or District Tribunal, which is composed of the Regent or the Head of the District each for his administrative district. Appeal against the verdicts of the District Tribunal can be made for civil affairs, to the Regency Tribunal. Appeal against the verdicts of the Regency Tribunal can be made to the District Joint Court.

The Penal code, in force in the N. E. Indies, recognises capital punishment; imprisonment (for life or for shorter terms); custody and money fines. Capital punishment is administered only in rare cases.

The convicts, who have been condemned to long terms, are forced to work as carriers in the Army in the Outer Islands, or as labourers in the Government collieries at Sawah Lunto (Sumatra), or Pulu Laut (Borneo), or at other important works of public interest (road building, irrigation works), or in the big prisons.

They are put to work in these prisons in the workshops where they are trained, as much as possible, in a trade useful to them (carpenter, blacksmith, tinsmith, weaver, tailor, shoemaker, etc.).

Special care is given to reformation work in the prison for youths at Tanah Tinggi (at Tangerang, near Batavia), an institution which has been opened only recently. Children under 16 years of age can be placed in Govern-

ment or Private reformatories, instead of being sentenced to imprisonment; they can also be entrusted to private persons, or returned to their parents.

PUBLIC FINANCES AND MONOPOLIES.

The financial administration of the Netherlands East Indies is founded upon a system of Annual General Budgets. The budget is divided into eleven individual estimates, each one of which consists of one section which, in its turn, is divided into four chapters. Each section is determined by the Governor-General in consultation with the "Volk s r a a d" and submitted to the Legislature in Holland for approval.

These classified budgets consecutively include the following sections:

- I. Government and Supreme Colleges.
- II. Department of Justice.
- III. Department of Finance.
- III-A. Netherlands East Indian Debt.
- IV. Department of Interior (Civil) Service.
- V. Department of Education and Public Worship.
- VI. Department of Agriculture, Industry and Commerce.
- VII. Department of Civil Public Works.
- VIII. Department of Government Industries.
- IX. Department of War.
- X. Naval Department.

The chapters into which these are divided respectively refer to:

- I. Disbursements in Holland.
- II. Disbursements in the Netherlands East Indies.
- III. Revenue in Holland.
- IV. Revenue in the Netherlands East Indies.

Incorporation of the N. E. Indies, as a body, took place in the year 1912, when the principle of differentiation was established between the colonies and the Mother-country, respecting property, assets and liabilities. The N. E. Indies then became a separate, self-subsisting, entity, with independent power to contract debts, and to expend in its own interests any favourable balance of its budgets. Under no circumstances would it contribute anymore to the revenue of Holland.

The authority to issue loans in its own name and on its own account (for which debts the Mother-country would accordingly no longer assume financial responsibility) was utilized for the first time in the year 1915.

Due to rigorous measures adopted for the recovery of arrears in taxes and to curtailment of the task of the authorities, and as a result of the introduction of a policy of strict economy, the Government succeeded, in 1925, in restoring to its budget the pre-War balance, without marring any vital interests of the population. Since that time the financial position of the N. E. Indies has re-established itself rapidly, and could soon be regarded once more as sound and healthy.

The floating debt has been entirely consolidated.

At the end of 1928 the total debt amounted to about 1 000 000 000 guilders, which is not excessively high if compared with the interest-bearing assets placed against it, in addition to substantial securities purchased from loans.

One of the measures, taken during the period of economizing with a view to ameliorate the general control over the management of the Government's finances, was the institution, in 1924, of the "General Treasury" as a branch of the Department of Finance.

In a broad sense, the "General Treasury" has as its task the promotion of anything that is conducive to an

efficient financial management, and the appropriate allocation of the Government finances.

In order to arrive at a clear understanding of the financial outcome of Government exploited industries, or of any branches of the Government organization that may be marked as such, the "Government Accountants Branch" was established.

The institution of the "Accountants Service of Taxation" took place in 1919 for the purpose of examining merchants books, whenever and wheresoever this was required for the assessment of taxes.

Survey of Receipts and Disbursements (in thousands of guilders).

Receipts and Items of Expenditure	1925	1929 (estimate)
Ordinary Service.		
Taxes	341,559	325,926
Surplus Monopolies	55,500	49,289
Surplus Produce	69,301	55,395
Surplus Industries	39,476	46,823
Miscellaneous Resources	17,755	16,724
Totals	523,591	494,157
Expenditure....	415,087	498,486
Balance Ordinary Service	+ 108,504	— 4,329
Extraordinary Service.		
Unfavourable Balance	37,509	61,944
Final Balance all Services	+ 70,995	66,273

The Netherlands East Indies, in common with other countries, discriminates between direct and indirect taxes. To the former belong income taxes, personal (or house rent) taxes, limited liability company tax, ground tax, and the land rental. The latter

group is composed of import and export duties, excise taxes, stamp duties, etc. A brief description of the principal taxes follows hereunder.

The p e r s o n a l (or house rent) t a x, which was formerly levied only from Europeans and foreign Orientals, has been made to include, since January 1, 1920, the native population as a source of taxation. The tax amounts to 5 per cent. of the annual house rent, and 2 per cent. of the valuation of the furniture. Horses, vehicles, cycles and automobiles are also assessed.

The i n c o m e tax is levied from all residents of the Netherlands Indian Archipelago. The annual net income is taken as the basis of assessment. With one or two exceptions, the tax is levied according to a progressive scale of rates.

The limited liability c o m p a n y t a x is laid upon the profits of any corporations and companies, no matter how created or organized, which are established within the Netherlands East Indies. Further, in the case of corporations and companies not established in the Netherlands East Indies, assessment under this tax is made upon the profits accrued from any business carried on within the Netherlands East Indies, and upon immovables situated within the Netherland East Indies, or from any rights on distributions made from the transfer of such fixtures, depending upon the quantity or proceeds of the products yielded by the exploitation of such fixtures.

The g r o u n d t a x is levied upon immovables, on which tenure or other duly registered real titles are exercised, in so far as no land rental or similar tax is payable on such movables. On private estates, dating back from the British Occupation (1811—1816), the tax amounts to 1 per cent., and on all remaining estates $\frac{3}{4}$ per cent. of the valuation of the land. For the purpose of taxation this valuation is determined each time for a period of five

years. On buildings and their premises the tax amounts, as a rule, to ten times the annual rent payable at the commencement of the year preceding the one in which the tax return is made. For long-lease holds this tax amounts to seven times, and for other fixtures, as a rule, is ten times the taxable annual proceeds computed over a period of five years preceding the one in which the tax return is submitted.

Under the name of *land rental* a tax is laid, which in Java and Madura, besides some four provinces in the Outer Islands, on land-holds in which real titles are vested, and which do not come under the stipulations regarding either ground tax or native ground tax.

The Netherlands East Indies' *tariff law* is purely fiscal. No discrimination is made between imports from Holland and from foreign countries. The greater part of commodities is liable to payment of a moderate "ad valorem" duty on importation varying from 6 to 12 per cent., while for a few articles the dutiable value is fixed according to measure, quantity and/or weight. A limited group is allowed entry duty-free.

In contrast to Holland, export duties are imposed on a few articles conveyed out of the Netherlands East Indies to foreign destinations, among which are coprah, hides and skins, cocoa-nut oil, pepper, tobacco, tin and bird's nests, while yet other export merchandise (mostly forest products) originating in the Outer Islands (with the exception of Bali and Lombok) are liable to export duty.

An excise duty is imposed on home distilled liquids in Java and Madura and on tobacco grown in the island of Borneo. Petroleum and volatile earth oil distillates and also safety matches are liable to excise duties throughout the entire custom territory.

Under the name of "*Tax on Transfer of Property*" a tax of 5 per cent. is imposed on all

agreements purposing the transfer of real property situated within the Netherlands East-Indies. The tax also includes deeds of registration, the transfer of ships and all transfer of real property or ships bequeathed by Natives and Foreign Orientals, who had their last residence within the Netherlands East Indies.

"S u c c e s s i o n D u t y" is the name of a tax imposed on the value of all property or property interest to which a person becomes beneficially entitled through the death of a European resident, or of a person having the same legal status as a European by act of equalization. The tax varies between 1— $\frac{1}{2}$ per cent. if the succession involves lineal descendants, and 15 per cent. if distant relatives are the inheritors.

The e s t a t e d u t y is imposed on the value of all real property, situated or established within the Netherlands East Indies, and inherited or obtained through the death of a non-resident of the territory. This tax amounts to an "ad valorem" duty of 3 per cent. through inheritance in the direct line and 8 per cent. in all other cases.

Under the name of "S t a m p D u t y" a tax is imposed on documents mentioned in the Stamp Ordinance 1921, in accordance with the stipulations set forth therein.

A tax known by the name of s t a t i s t i c a l d u t y has been imposed since 1925 on all commodities imported and exported. This tax amounts to five cents per twenty guilders, or part thereof, computed on the total value declared in the bill of entry.

The Government of the Netherlands East Indies has the exclusive control of three monopolies, namely: pawnshops, opium manufacturing and salt winning.

In years before, the p a w n s h o p s were operated by private individuals only. The right to conduct these was leased from the Government or acquired by State grant. The usury and other malpractices prevailing under both

systems caused the Government to decide, in 1903, to place the management of pawnshops under its own control after a probatory term of experimenting. Wherever there are Government pawnshops it is — as a rule — prohibited, upon penalty, to lend money or goods by pledge, on security not exceeding in value one hundred guilders.

The opium monopoly was introduced in the year 1894 and is now in force throughout the whole of the Netherlands East Indies. It has no other object than to make provision, for as long as it is necessary and in conformity with international agreements made in this respect, for existing requirements of smoking opium (*chandu*), and to guard against and prevent, in so far as it is possible, the abuses attending the consumption of this narcotic. A number of measures have been taken to curtail the use of this intoxicant to a minimum. The sale is conducted by officials who receive fixed monthly wages, so that there are in the Netherlands East Indies no middlemen who would benefit in any way by the volume of its sales.

With one or two exceptions the preparation of salt other than under licence issued by the Government, and on its sole behalf, has been prohibited in Java and Madura since time immemorial. During the past few years the Government has extended its monopoly to most of the districts in Sumatra and throughout the whole of Netherlands Borneo. However, in Southern Celebes the preparation of salt on a large scale is still in the hands of private people. From this producing centre the different surrounding islands are supplied with salt.

The preparation under Government control is carried out on the island of Madura, where the salt is obtained by the evaporation of sea-water in pans by natives. It is subsequently delivered to the Government stores at a fixed price.



CHAPTER XXXIV.

THE MONETARY SYSTEM.

Between Holland and the Netherlands East Indies there exists an unit of currency as regards the gold standard and the silver coins of nominal value. Both countries possess a variety of small change.

The basis of the present regulation of our system of currency dates back to the year 1875, when the gold ten-guilder piece was introduced along with the silver coins as standard currency.

I. Coins possessing the quality of legal tender up to any amount are:

A. Gold: the ten-guilder piece, the five-guilder piece.

B. Silver: the rix-dollar, the guilder, the half-guilder.

II. Small coin, consisting of:

the $\frac{1}{4}$ guilder piece (silver), the $\frac{1}{10}$ guilder piece (silver), the 5 cent piece (nickel), the $2\frac{1}{2}$ cent piece (copper), the 1 cent piece (copper), the $\frac{1}{2}$ cent piece (copper).

III. Coins not possessing the quality of legal tender: the gold ducat.

The fineness of the silver coins of nominal value was reduced by the Act of November 24th, 1919, from $\frac{945}{1000}$ to $\frac{720}{1000}$.

The gold standard was abandoned during the World War; on the 27th April, 1925, it was again established.

The exchange value in gold of the N. E. Indian guilder is guaranted by a voluntary gold declaration of the Java Bank, which is to the effect that the circulation bank

declares its readiness, as soon as the position of foreign exchange allows of same, to part with gold at a price of f 1653,44 per kilogramme fine, which price corresponds to the par value.

THE JAVA BANK.

Among the local banking institutions the Java Bank, established on the 24th of January, 1828, occupies an especial position in that, it is the circulation bank of the Netherlands East Indies. The privileged issue of bank-notes was extended on the last occasion for a period of 15 years in virtue of the Java Bank Act of March 31st, 1922, which has remained unaltered up to date except for some slight revisions. The notes are put into circulation in denominations of f 1000, f 500, f 300, f 200, f 100, f 50, f 40, f 30, f 25, f 20, f 10 and f 5. In contradistinction to the regulations existing in some other circulation banks, the extent of the circulation of notes of the Java Bank is not restricted to any definite maximum, there being an elastic cover regulation to the effect that 40 % of the dues payable on demand must be covered by specie or bullion.

A minimum of three-fifths of the bullion must be present in the Netherlands East Indies, while again a minimum of one-fourth must consist of standard currency of the Netherlands East Indies.

Although, according to the terms of its Charter, the Bank is not obliged to issue gold, it has nevertheless voluntarily declared its readiness to do so, with reference to the maintenance of the parity of currency, should foreign exchange rates give occasion for the same. This declaration was published on the date on which the gold standard was re-established in the Netherlands East Indies in the Official Gazette of April 29th, 1925.

An important means of maintaining as stabilized rates of exchange as possible is the gold exchange policy applied by the Java Bank. This latter is possible by the trade in foreign bills, permitted by the Charter, and by the right to retain balances abroad.

The Bank is not authorised to generally grant open credits and to invest cash for long periods. In consequence the Bank should not have interests in commercial, industrial and other enterprises. The investment of cash in shares and mortgages is permitted only with regard to the investment of the capital and the reserve funds.

In relation to the Government the Bank has taken on itself the promotion of certain interests. These obligations are by way of compensation for the privilege obtained from the Government for the issue of notes.

The head-office of the Java Bank is established at Batavia. The Java Bank has a branch at Amsterdam, while agencies have been established at Bandoung, Cheribon, Djocjakarta, Kediri, Madiun, Malang, Samarang, Sourabaya and Sourakarta in Java; at Bengkalis, Kota Radja, Medan, Padang, Palembang, Pematang Siantar and Tandjung Balei in Sumatra; at Bandjermasin and Pontianak in Borneo, and at Macassar and Menado in the Celebes. In regard to its business abroad the Bank has relations with foreign correspondents in London, Paris, Hamburg, Berlin, Singapore, Yokohama, San Francisco and New York.

The Bank has organized a regular clearing with other big banking institutions in the principal centres of the Indian Archipelago. This clearing system is of advantage to the cheque traffic in the Netherlands East Indies promoted by the Bank.

The authorized capital now amounts to f 9 000 000, divided into paid up whole and half shares of f 500 and f 250 respectively. The shares are registered and are in the hands of private individuals.

The reserve funds amount to f 13 500 000 (maximum); the extraordinary reserve amounted to f 1 755 097.46, on the 31st March, 1929.

Since October 1924, some changes have occurred in the discount rate, which since July 22nd, 1929, has been 5 ½ %.

OTHER BANKING INSTITUTIONS.

In addition to the bank of circulation of the Netherlands East Indies — the Java Bank —, several other large banking institutions are operating in this country. The structure of economic life in these regions is strongly reflected in banking trade. A line of distinction may here be drawn between two types of existing banking institutions. On the one side are found companies which are carrying on the business of pure banking, known in economic literature under the name of "general banking institutions"; on the other side institutions are found which, in one way or another, have for their object the financing of agricultural undertakings, and of branches of industry relating thereto, — the sugar industry in particular. The latter type of institutions is known under the name of "agricultural banks".

The Indian banking companies are distinguished from the European organizations in two respects. Firstly the issue of shares and the co-related loans on stock security are of little or no significance in this country, because the Netherlands East Indies are an agricultural country with a relatively small formation of private capital. For this reason no important stock market is found here. Secondly, the relationship between banking proper and agriculture is much closer in this country than, for instance, in the Mother-land. Most of the short-term loans issued by the

general banking institutions are intended for agricultural purposes. These banks supply most of the circulating capital required for the financing of the annual crop. The principal among these banking institutions are:

1) the Nederlandsche Handel Maatschappij;
2) the Nederlandsch Indische Escompto Maatschappij; 3) the Nederlandsch Indische Handelsbank; 4) the Chartered Bank of India, Australia and China, a British banking institution; 5) the Hongkong and Shanghai Banking Corporation, a British banking institution; 6) the Mercantile Bank of India Limited, a British banking institution; 7) the Bank of Taiwan, a Japanese banking institution; 8) the Yokohama Specie Bank, a Japanese banking institution; 9) the Mitsui Bank, a Japanese banking institution.

The following are among the principal agricultural banks:

- a) the Nederlandsche Handel Maatschappij. With this institution general banking and agricultural banking are still centred in one body.
- b) the Nederlandsch Indische Landbouw Maatschappij, the affiliated institution of the Nederlandsch Indische Handelsbank.
- c) the Internationale Crediet- en Handelsvereniging "Rotterdam".
- d) the Handelsvereniging "Amsterdam".
- e) the Koloniale Bank.
- f) the Cultuur Maatschappij der Vorstenlanden (the Agricultural Association of the "Vorstentlanden" = Principalities).

THE SAVINGS-BANK SYSTEM.

As ranking foremost in importance among the savings banks, the Post-Office Savings-Bank deserves to be mentioned in the first place. It is an institution of the Government, established at Weltevreden (Batavia), which commenced its operations on July 1st., 1898. The opportunity was created, by way of trial, to make deposits and withdrawals of cash also at the Government Pawnshops in the former residencies of Rembang, Sourabaya and Madura, while to those in the service of the Government, the local departments (territorial divisions) and of large private corporations facilities are offered for the investment of their savings at the P. O. Savings Bank by means of periodical deductions from their income.

At the end of 1928, the total of the P. O. Savings Bank's deposits was about 22 million guilders, 13.4 million of which were shared by Europeans, 7.2 millions by Natives and 1.4 million by Chinese and Foreign Orientals. The available cash is used as much as possible to meet the credit demands of the N. E. Indies.

In addition to the institution described above, there are in the N. E. Indies nine other private savings-banks, five of which are established in Java and four in the Outer Islands. The total of funds invested in these banks amounted to 20 million guilders at the close of 1928, 79 per cent. of which was credited as coming from European depositors.

THE PEOPLE'S LOAN SYSTEM.

In order that capital needs may be placed within easy access of the native population, and with the dual object of crushing the power of private money-lenders and checking the all too frequent practice of usury, the

Government created, in 1900, the People's Loan System, which has since been built up to a country-wide organization. At the present time it embraces three kinds of loan and investment institutions, viz., the "desa lum-bungs", which issue loans in kind, and the "desa" banks and rural district banks, both of which have as their purpose the furnishing of credits in sums of money. The Central Cash Office at Batavia functions as the super-structure built on this system.



CHAPTER XXXV.

AGRICULTURE.

THE AGRARIAN LEGISLATION.

Since the abolishment of the "Culture System" (system of compulsory cultures), there are mainly two principles which characterizes the agrarian policy of the Netherlands Indian Government: protection of the native landed property against economically stronger groups and the promotion of the agricultural industry, on a large scale.

The protection of the native, who is economically weak, is expressly prescribed by the legislator. Not only are the land rights, which the population can assert, maintained in their entirety, but there are numerous laws which tend to prevent the native land-owner from being ousted. Agreements for the sale of land to Europeans and foreign Orientals are therefore, according to the law, regarded as null and void, whilst the hiring of agricultural land to persons of these nationalities is subject to restrictive conditions.

Owing to these protective measures, however, the problem as to the manner in which the large-scale private agricultural industry was to obtain its land, became more complicated. It was not until the Agrarian Law of 1870 was passed and the subsequent agrarian decree was issued, that a real solution of the problem was found. The guiding principle of that decree was, that all land to which right of property could not be proved by others, was to be regarded as the property of the State, whereby the juridical possibility of issuing land through the Government was created. It was further determined that this issuing of crown-lands could take place on long-lease.

Although the agrarian decree was only intended for Java and Madura, it was not long before other ordinances opened up the possibility of issuing land on long-lease in the directly governed districts of the Outer Islands, whilst for the self-governed territories there is a special form, the so-called agricultural concession ("landbouw-concessie").

Legal status of the land for non-native agriculture, 1928.

Legal status of the land	Java and Madura		Outer Islands	
	Holders	Area (hectares)	Holders	Area (hectares)
Private lands ...	152	552 310	106	1,972
Long-lease for estate agriculture	1 109	690 030	1 262	1 230 205
Voluntarily hired from the inhabitants	—	209 044	—	—
Estate land in the „Vorstenlanden” ...	—	70 550	—	—
Long-lease for small holdings and horticulture	480	5 262	30	256
Agricultural concessions	—	—	389	1 337 138
Total areas .	—	1 527 196	—	2 569 571

During the period of the East India Company, and also in later years, various governors sold plots of land,

owing to lack of money and for other reasons. As a result of this policy, large areas of land in the neighbourhood of Batavia and also in a few other districts, are still private property. In general this state of affairs is regarded as undesirable. The landlords exercise all kinds of special rights and many out-of-date customs have been retained on their land. As the protection of the native population against the landlord also proved to be a source of continuous difficulties, the possibility was opened in 1910 for the return of these lands to the Government by means of expropriation. Large tracts of land have already been bought up or expropriated, whereby the ground rights of the natives residing thereon have been maintained.

The hiring of ground from natives by non-natives, in Java and Madura and in many parts of the Outer Islands, only takes place through the intermediacy of the Civil Service, in order to prevent abuse.

The payment of the hire in advance is subject to restrictive conditions, and the period of the hire agreement is limited to the maximum laid down in the statutes. For rice fields this term is usually $3\frac{1}{2}$ years. The possibility exists, however, to hire rice fields for longer periods, up to a maximum of $21\frac{1}{2}$ years. In this case the land has to be temporarily returned to the native lessor during a number of West monsoons (the so-called intermittent contract), whilst a minimum hire is fixed. For dry fields the maximum hire period is usually 12 years.

A peculiar form of land hire has developed in the "Vorstenlanden", and until a few years ago this was the foundation of the European agricultural industry in these districts, consisting chiefly of tobacco and sugar estates.

In the course of years, a native municipality system has been created and gradually been introduced; the lands,

whether or not cultivated alternately by the natives and Europeans, were given up to the municipalities, with the native rights, and a new ground rent regulation for the "Vorstelanden" (Principalities) was drawn up (1918), the conditions of which are similar to those for the ground rent in other parts of Java.

In order not to involve the existing estates in losses, a preference position was created for them.

Waste land can be leased by the self-governing districts to estate owners.

The issue of land on long-lease can take place either on the initiative of the Government or on the application by private persons. In the first case the Government describes and maps out the area and then offers it in lots, of at the most 550 "bous" (= 964.5 acres) by public tender. Public tenders of this description are rare; long-lease is nearly always granted on application so that we will confine our further remarks to this form.

Neither the provisional, nor the definite promise, entitles the holder to cultivate the ground. This right is obtained only after the leasehold rights have been enrolled in the public registers. If, however, it is necessary for the applicant to make an immediate start with the working of the ground, the Chief of the Department of Civil Service can grant him a permit.

Only Dutch subjects, residents of Holland or the Netherlands East Indies and Companies, which are established in the Netherlands or in the Netherlands East Indies, are allowed to become long-lease tenants.

In the self-governing provinces of the Outer Islands a special form of issue of land for agriculture on a large scale has developed, i.e. what is called a *gr i c u l t u r a l c o n c e s s i o n*. In some districts the issue is made by the self-governor, subject to the approval of the Head of the Provincial Government concerned; in others, by

the Head of the Provincial Government, for and on behalf of the Government.

In both cases, with the exception of the province of the East coast of Sumatra, the same requirements are made for the qualification of the agricultural concessionary as is the case with the long-lease tenant, on the understanding, however, that the concessionary must choose his domicile at the office of the Head of the Provincial (or Local) Government concerned.

The sites may not cover a larger area than 5000 "b o u w s" and are not issued for longer than 75 years. The annual rental, often referred to as "c i j n s", amounts to a minimum of gld. 1.— per ha; if the "c i j n s" is lower than this figure, the consent of the Government must be obtained.

In the districts where these long-lease regulations are in force, the agricultural concession is no longer obtainable and will gradually disappear altogether.

AGRICULTURAL PRODUCTS.

It is beyond question that it was European agriculture which has given to the Netherlands East Indies the world-wide reputation of being the agricultural producer "par excellence". The large European cultures such as sugar, rubber, tobacco, coffee; tea, cinchona and many other products are universally known, as is similarly their significance for the international markets. However, among the uninitiated there are many, who probably do not fully realize the extraordinarily important position occupied besides by native agriculture in the economic life of the N. E. Indies.

It is true that owing to the peculiar nature of native agriculture, which mainly works for the provision of the

interior markets, its share in the export of agricultural produce is considerably smaller than that of the estates, but it is rapidly increasing. Although in 1894 not more than 11 per cent. of this export was shared by native production, in 1913 this proportion had already risen to 25 per cent. This was followed by an added increase towards the close of the Great War, and in 1928 the share amounted to 34.63 per cent. A further increment of this ratio is more than likely, in the future.

From a statistical table it appears that the cultivation of food and other crops, which are mainly intended for domestic consumption and, in some instances, even for use in certain centres, has remained almost entirely in the hands of the native population. Only the surplus of such crops, as rice, maize, cassava, arachides, cocoa-nuts, sago, vegetables, potatoes, etc. are intended for export. The estates have been also able to capture a share of the exports, but only of coconut and cassava products. Of the crops, which are cultivated principally for the world markets, only a few are raised entirely, or at least for the greater part, on estates, namely: sugar, tea, cinchona, oil-palm, agave and coca. The most important spice (pepper) as well as the most important fibre (kapok) are supplied largely by the indigenous population. The better grades of tobacco are produced entirely on estates: the lower grades are supplied mainly by native producers. The native agriculture of rubber and coffee has grown in importance during the last few years to an ever increasing extent; the quantity of estate coffee, exported annually, has already been excelled by the native product.

From an economic point of view, European agricultural estates in the Netherlands East Indies are characterized especially by the large scale on which they are conducted, and by the fact that production is intended

almost exclusively for export. However, the power of organization combined with rational scientific working methods have, at the same time, impressed their stamp on this branch of national income.

The sugar industry has built up its own organizations. The greater majority of the factories have joined the "Proefstation voor de Java Suikerindustrie" (Experimental Station for the Java Sugar Industry) and an amount of 1 200 000 guilders (£ 100 000.—) is annually made available for the proper functioning of this institution. Of the other organizations of this industry only two more will be mentioned here, i. e. "Het Algemeen Syndicaat van Suikerfabrikanten in Nederlandsch-Indië", which has for its task the promoting of the interests of the industry in any domain of its activities, and the "Vereenigde Java Suiker Producenten" (V.J.S.P.). Created under the critical circumstances of the War years, this institution operates as the central sales organization of the factories under the combine.

The amalgamation of the mountain cultures in Java has now likewise been concluded. Besides a number of smaller organizations of more local importance, there have gradually come into existence four powerful unions of cinchona, tea, coffee (and cacao) and rubber estates respectively. These four are combined under the "Algemeen Landbouw Syndicaat" (General Agricultural Syndicate), which is of great importance especially for the efficient functioning of the experimental stations. A division of labor has now been introduced for these institutions which is being rigidly pursued. The Experimental Station at Malang functions on behalf of the coffee culture; the Tea Experimental Station at Buitenzorg in co-operation with the Experimental Station of Middle Java at Salatiga acts for the benefit of the tea culture and

different small cultures (cacao, oil-palm, kapok, fibres, etc); the Cinchona Experimental Station at Pengalengan (near Bandoung) operates in the interests of the cinchona culture, while, finally, the Central Rubber Station at Buitenzorg fulfills the function of central institution for the rubber culture. The regional work is performed by each of the different stations covering their own territory. The agricultural territory of the East coast of Sumatra has likewise its own organizations. The tobacco estates situated in that area form together the "Deli Planters Vereeniging"; the rubber estates are combined into the "Algemeene Vereeniging van Rubberplanters ter Oostkust van Sumatra" (A.V.R.O.S.). The Deli Experimental Station, established at Medan, devotes itself especially to the study of the tobacco cultivation; the General Experimental Station of the A.V.R.O.S. to the cultivation of rubber, oil-palms, tea and one or two other crops.

In Java and Madura native agriculture has preserved unchanged its centuries old character, directed primarily at the production of food crops for domestic consumption. Owing to plentiful rainfall, rice cultivation on irrigated fields has developed in these islands as it did elsewhere in the monsoon region of South and East Asia. This offered the possibility of creating densely populated settlements. In subsequent years, however, the increase of population in many districts necessitated the turning into use of non-irrigated fields. "Ladang" (dry grown) paddy, millet (djali) and tuberous crops, such as batatas, were grown in these fields during earlier times. However, when maize and cassava were imported from America and yielded much better results than the old indigenous crops, these last were more or less superseded by the new products. This process, however, was not confined to the dry fields only; the "sawahs" were also being occupied to

an increasing extent by these crops during the dry (or East) monsoon.

In the past century a number of marketable crops were added to the former, of which pea-nuts and tobacco are in fact the principal. Overseasoned crops occur in Java more of cultures raised on the premises of native homesteads. Cocoa-nuts, kapok, and to a certain extent tea, are among the most important, while fruit growing on the dwelling premises of the native is of equally great importance, as will appear from another section of this chapter.

Native agriculture in the Outer Islands shows an entirely different process of development. As conditions in many districts are less favourable for the development of the "wet" cultivation of rice, this product has developed there into the so-called "ladang" culture.

A very important and extensive cultivation of export products is now growing out of this "ladang" culture. It has been customary for a long time already to plant overseasoned crops next to paddy. These catch-crops were left to their own fate after harvesting was over. Especially benzoin and gambir (catechu), and later on cocoa-nuts, were also cultivated according to this custom. In this way, however, extensive rubber and coffee gardens also grew up during the past ten years. This method has greatly augmented the capital stock of the population, without necessitating any demand on the money market. It does not require any further comment that this is of vast importance for the position of the Netherlands East Indies.

The sugar cane industry, which so far has developed in Java only, undoubtedly occupies a most prominent position among the large European-managed cultures of the island.

The preponderant position, which the Java sugar industry at present holds among the producing countries

of the world, has been secured by an admirable organisation for mutual assistance in all directions, above all in regard to research-work, and by the adoption of scientific methods of cultivation and manufacture, on which it would be difficult to improve, carried out under highly trained and well-paid supervision.

The chief requirements for a successful cultivation of sugar cane are an abundant rainfall during the growing season and a period of uninterrupted drought during harvest time. Whereas in Java the further one proceeds Eastwards, the more one may rely on a dry Eastern monsoon, sugar estates are principally situated in the Central and Eastern districts of the islands.

There are 178 mills in Java, with an average plantation of about 1 100 ha. The area planted with sugar cane has been extended from about 75 000 ha. in 1894 to 189 471 ha in 1928. The average sugar-production per gross ha has been increased from 20 quintals in 1840 to about 130 quintals during the last years. This remarkable increase is due to the growing of new varieties, to the progressive intensification of culture, and to improvements in milling technique. The well-known 2878 *POJ.* variety gives an average sugar-production of even abt. 160 quintals per gross ha and it may be expected that owing to its splendid results it will nearly predominate the whole Java cultivation in 1930.

R u b b e r is the latest of the agricultural estate-industries in the Netherlands East Indies, but the native- and estate rubber industries together cover a larger area than any other product and none of the other cultures can boast of such a tremendous growth.

Practically speaking the only rubber producing tree cultivated to-day for commercial purposes in the N. E. Indies, is the *Hevea Brasiliensis* or Para Rubber tree.

In Java, most plantations are situated at an elevation of about 100 m (300 ft)—500 m (1500 ft) above sea level, rarely lower or higher. At a height of 700 m (2100 ft) the climate is less favourable for *Hevea*. In Sumatra, on the other hand, the majority of rubber estates is found at a height of less than 100 m, owing to the fact, that large areas of the lowlands, sparsely populated, are still covered with primeval forest of little economic value, which was cleared to give place to extensive *Hevea* plantations, contrary to Java, where almost all the lowlands were in use for other agricultural purposes by the natives.

Not until 1910 did the cultivation of *Hevea* become of such a magnitude, that the rubber plantation industry might be said to rank with the big industries. Since then the planted area has been regularly extended, and in 1928 it covered about 525 646 ha for rubber plantations only, of which 348 512 ha is tappable. The total number of rubber estates in the N. E. Indies amounted in 1928 to 1009; 538 of these estates plant nothing but rubber, the other half plant also tea, coffee and other crops.

Besides the plantation rubber industry there is in the N. E. Indies a very important native rubber industry. Encouraged by the success of European-owned estates and having considered that the cultivation could be carried on with comparatively little trouble, as technical assistance is not essential to the preparation of rubber, the native inhabitants started planting *Hevea Brasiliensis* on a large scale, chiefly in Sumatra (Djambi, Palembang) and West, South and East Borneo. At present this area is estimated at approximately 750 000 ha, of which about 200,000 ha are in production, but considering the respective extensions of the planted area during the last few years, it is to be expected that the increase of production in the area is going to be very considerable during the years 1930 and 1931. The export of

native-grown rubber in 1919 amounting to about 13 000 tons, reached a total of 91 543 tons during 1928, but in view of the above, it may be expected that the output of native rubber will increase in the future to 200 000 tons of dry rubber.

Gutta-Percha is a product having special and valuable qualities, i. a. great isolating capacity, of being acid-proof and lye-proof, hard and tough under ordinary temperature and easily malleable under comparatively slight heating. It is chiefly used as insulating material in the manufacture of submarine cables, for driving belts and for the manufacture of golf-balls.

The best quality is produced from *Palaquium Oblongifolium* on an estate in Java, belonging to the Government; this estate "Tjipetir" covers 1205 ha in production. The total gutta-crop during 1928 amounted to 76 080 kg. A second estate on the East Coast of Sumatra is in preparation.

Tobacco has been occupying one of the foremost places among the export products of the country for more than half a century. The estate cultivation of this product was centred in three regions with widely varying methods of cultivation. In *Deli* (East coast of Sumatra), which is known to produce the best wrapper leaf of the world, cultivation is carried on in virgin soil. A certain tract of land is planted with tobacco only once in eight years. After that it is suffered to lie fallow for a considerable time, in order to recover the necessary strength to again produce the same fine quality of tobacco.

In the *Vorstenlanden* (Principalities) a system of cultivation has developed which, with the existing crude method of earth tilling and drainage, has turned tobacco cultivation into a sort of horticulture. In this region an excellent quality of leaf tobacco is also produced.

In *Besuki*, the third centre of European tobacco cultivation, a system has been adopted, whereby the growing of the crop is left to the native agriculturist. The estates here absorb a large variety of qualities, which can be used for the most widely varying purposes.

Next to European agriculture there exists a very important native cultivation of tobacco, of whose production little is known. A considerable share is intended for domestic consumption (so-called "cut tobacco"), while another portion is sold to European "buying-up" estates or to Chinese, and exported under the name of "krossok".

Of the cultures of the Netherlands East Indies, that of coffee is one of the oldest and best known. The *Robusta* coffee (*Coffea Robusta*) imported from the Congo in 1900, which variety combines great resistance to leaf disease with high productivity, has afforded the basis so earnestly desired for a revival of the coffee cultivation. No less than 84 per cent. of the total production (including the native product) is now yielded by this variety.

Robusta demands a well percolating soil and feels most at home at a height of between 1000 and 2500 feet.

In Java a very extensive coffee cultivation is centred in the Eastern portion of the island (the former residencies of *Besuki*, *Pasuruan* and *Kediri*); in 1928 76 per cent. of the total estate production originated from these districts.

As regards Sumatra, the cultivation of this product has come to development especially in the middle part of the island. Its share in the production is placed at 11 per cent.

In Palembang, in other districts of South and West Sumatra, and in North and Middle Celebes, native cultivation has attained to great prosperity. In 1928 native cultivation received credit for a total production of 70 635 (metric) tons of coffee.

For the tea shrub loose soil, rich in humus, will give the best conditions of growth. The most preferable height is between 600 and 2000 meters (2000—6500 feet) above sea level, in regions where rainfall is plentiful and uniformly distributed over the year. Even to this day the mountain region of West Java (Preanger Regencies) forms the centre of this branch of agriculture. Owing to its dense population this area at the same time provides the best material for the large demand of labor (especially female). Slowly and gradually tea cultivation has found its way to Middle and East Java. Since 1911 a new tea area has been rapidly growing on the East coast of Sumatra in the neighbourhood of Pematang Siantar, which has attracted universal attention on account of its large productivity.

When during the course of the previous century quinine was capturing an increasing share in European therapeutics, and when it appeared that the inefficient mode of exploitation of the cinchona tree in South America was rapidly leading to a perceptible shortage of this fever-resisting remedy, the N. E. Indian Government decided to make an effort to bring the tree into cultivation in this country. The mountain plateau of Pengalengan, to the South of Bandoung, is the most suitable site for the cultivation of cinchona, due to the fact that its soil contains rich sources of humus and that it is situated at a convenient height above sea level.

The cinchona cultivation in the Netherlands East Indies is centred to a large extent in the mountain districts of West Java, which furnish more than 86 per cent. of the total production, while the district of the West Coast of Sumatra is gradually becoming of greater significance. Native cultivation does not occupy as yet a place of any importance.

The coco palm is met with throughout almost the whole of the Netherlands East Indies, but generally

has a preference for low ground. It thrives best on loose, well percolating soil, in a climate where periods of drought do not last too long. The palm is planted both on estates and by natives, and in the latter case mostly as a home farm crop in Java and Madura, while in the Outer Islands gardens have more especially been laid out for its proper cultivation. Estate cultivation, however, is not nearly as important, in this case, as native production.

While production during 1928 totalled 26 125 (metric) tons of coco nuts and copra, the output of native cultivation for the same year, covering Java and Madura alone, was estimated at more than 222 000 tons; exports of the native product from the Outer Islands exceeded 395 000 tons in quantity. Of this last 29,4 per cent. came from the Minahasa (North Celebes); 21 per cent. from the rest of Celebes and the Moluccas; 19 per cent. from West Borneo; 7 per cent. from Bali and Lombok; 5,5 per cent. from the West coast of Sumatra, and 18,1 per cent. from the other islands.

The production of factory coconut oil during the last few years has shown a marked increase and in 1928 amounted to upwards of 136 million liters. Of this 69,5 per cent. was used for consumption in Java and 30,5 per cent. was exported abroad and to the Outer Islands. The offal from manufacture (copra cakes or "bungkils") form a well-known cattlefeed.

The cultivation of the oil-palm in the Netherlands East Indies dates back to 1911, but has developed rapidly during its brief existence. Contrary to the cocoa-nut palm, its cultivation is entirely carried on by European enterprise. Its principal field of production is the district of the East Coast of Sumatra and Acheen, which produces approximately 97 per cent. of the total output, in 1928 amounting to 27 030 tons of oil.

From an economic point of view the most important fibre of the Netherlands East Indies is undoubtedly the kapok, which is obtained from the fruits of a tree, that is usually known in Java by the name of randoe. The bulk of the kapok is produced by scattered native plantations; but the randoe tree is also grown on European estates where as a rule it is planted among coffee and cacao.

Native and European cultivation is mainly found along the North coast of Java, especially in the central and Eastern part thereof, where conditions for cultivation, such as fertile, well percolating soil and a dry monsoon, are favourable. The Java kapok has succeeded in gaining a very favourable reputation on the world market. It is especially resistant against deterioration and does not attract vermin, due to its great purity and freedom from nitrogenous substances. It practically absorbs no moisture and is distinguished by its extreme lightness and elasticity. Finally the fibre readily permits of sterilization by heating. These properties render the product an excellent stuffing material for mattresses, pillows and German "Bettdecken", while owing to its high specific lightness, its finding increasing application as a filler for life buoys and swimming vests. This fibre has likewise proved of inestimable value for other purposes (heat insulating material, sound absorption, filtration, shock cushions in aviation, dressings, etc.).

Next in importance for the world market, special mention should be made of the agave fibre, the cultivation of which has largely developed in Java during the last fifteen years. Since a short time the East coast of Sumatra has also shown a rapid expansion as a field of production. Native cultivation is only of local importance as yet.

It is due to its fine qualities that sisal can be used to advantage in the manufacture of higher quality ropes

(fishing lines, strong ships' rope, transmission rope, etc.). The *cantala* is used for purposes where considerable strength must be combined with flexibility and attractive appearance (thin binding twine, net bags, hammocks, athletic implements).

The *gemutu* may be mentioned among the remaining fibres obtained from the areng palm. Due to its great resistance to water it is especially in demand as a fibre for brush-ware.

The Netherlands East Indies possess a large diversity of plants rich in essential oils. These plants are mostly found growing in the wild, but so far the cultivated varieties have commanded the highest economic value.

Of especial importance is the *citronella* oil, which is won from the leaf of the so-called "sereh wangi" or "aromatic herb" by a process of distillation. Owing to its high geraniol content (85 per cent. or more) the Java oil compares favourably with its principal competitor, the Ceylon oil, which has a geraniol content of only 60—65 per cent. The product finds application in the manufacture of soaps and of synthetic rose oil (attar of roses).

The leaf of another species of grass, the "*lemon-grass*", yields the lemon-grass oil, — a finer product than citronella. From the leaf of a third species, — the *palmarosa* grass —, ginger-grass oil is won, whose fragrance is like the rose's; and finally the vetiver oil, or cuscus, which is obtained from the roots of a fourth species, — the "*akar wangi*" or aromatic root.

A well-known Javanese species of trees the "*Cananga*" yields fragrant flowers from which the native population of the N. E. Indies obtains the *cananga* oil perfume, by means of primitive distillation. Worthy of

mention are finally the Cajuput tree, from whose leaves the well-known cajuput oil is distilled by the natives of Buru (Moluccas); and the "Nilam", which is planted by the native population of the West coast of Acheen (Sumatra); it yields the patchouli oil.

The cultivation of different varieties of spices has nowadays lost much of its significance in comparison to production of bulk articles. A somewhat unimportant clove cultivation is still being maintained in Ambon and Saparua (Moluccas). The nutmeg, however, has retained its importance. On the island of Banda, renowned from old for this product, and in Java where it is grown as a catch-crop, its cultivation is carried on principally on estates; in Celebes and in Sumatra, on the other hand, the cultivation is largely in the hands of the native population. The Netherlands East Indies still continue to be the world's source of supply of nutmeg and mace.

By far the most important of the N. E. Indian spices at the present time is pepper. The cultivation of this crop is carried on almost entirely by Chinese and natives on the islands of Sumatra and Borneo; besides there is a number of European estates whose total production during 1928 amounted to 87 metric tons. In Sumatra and Borneo pepper is cultivated extensively as a forest crop by the native population, but little care is given to it. A marked contrast is presented by the Chinese cultivation on the island of Banca, which has assumed the most perfected form of horticulture, but it has, at the same time, necessarily involved considerable capital investment.

Rice constitutes the chief agricultural product of the Archipelago as the staple diet of the indigenous population. In Java and Madura the cultivation of this staple product occupies more than half of the area planted

with native crops. The 1928-production amounted to 6 444 millions kilogram of paddy (unhusked rice) while the output per unit of surface is 2 182 kilogram per hectare, which figure can easily stand the test of comparison with other rice producing countries. Japan and Italy only can boast of higher production per hectare, viz. 3 210 and 4 250 kilogram respectively.

Improvements in irrigation works and expert intelligence provided to the native agriculturists in regard to manuring, earth tilling and other working methods, are among the measures taken by the Government with untiring efforts to encourage the cultivation of this product. Nevertheless considerable imports annually find their way into the N. E. Indies from other South Asiatic countries.

Of the area, which is occupied by native agriculture in Java and Madura, approximately one fourth is given to maize, while this crop is also tilled on the islands of Celebes, Sumatra and Timor. As a food crop for the native community it is of very great importance, while moreover considerable quantities are exported.

As this crop is mostly grown in less fertile, dry soil, the yields per hectare are low. It is hoped to considerably increase the productivity by means of green manuring, for which the Agricultural Intelligence and Research Service is now making successful propaganda.

The cultivation of cassava is almost entirely in the hands of the natives. On Java and Madura this crop occupies approximately one tenth of the plantable area; in the Outer Islands this cultivation is, however, of minor importance. The total production during 1928 was estimated at 6 161 400 metric tons of fresh tubers.

The dried cassava roots are likewise an important export commodity. The preparation is extraordinarily simple and is done exclusively by Chinese and natives.

EXPORT OF AGRICULTURAL PRODUCTS DURING 1928.

	Estate produce			Native produce		
	Quantity in 1000 kg	Value		Quantity in 1000 kg	Value	
		f 1000,—	o/o		f 1000,—	o/o
Sugar	2 997 504	372 366	99.08	30 913	3 430	0.92
Rubber and Latex	144 814	195 868	70.45	91 543	82 149	29.55
Gutta Percha (cultivated)	65	404	100.00	—	—	—
Leaf Tobacco	32 574	82 160	100.00	—	—	—
Krossok and Cut Tobacco	9 142	1 463	22.61	28 774	5 002	77.39
Coffee	42 523	31 151	39.25	70 635	48 211	66.75
Tea	54 049	76 206	77.59	15 668	22 004	22.41
Cinchona Bark and Quinine	7 932	7 098	100.00	—	—	—
Copra	23 539	5 634	—	417 512	100 857	94.71
Other Coconut Products	—	—	5.29	97 339	21 438	100.00
Palm Oil	34 598	10 075	100.00	—	—	—
Agave	50 306	17 757	100.00	—	—	—
Kanok Fibre	1 619	1 631	8.38	18 119	17 832	91.62
Other Kapok Products	2 050	159	7.72	24 096	1 899	92.28
Gomuti Fibre	—	—	—	155	52	100.00
Cotton	—	—	—	1 585	857	100.00
Essential Oils	549	1 181	42.63	754	1 593	57.37
Pepper and Cubebs	87	154	0.35	24 479	43 181	99.65
Nutmegs, Cloves and Mace	1 157	1 274	22.51	4 235	4 390	77.49
Patchouly leaf	—	—	—	1 304	260	100.00
Cinnamon	—	—	—	2 553	827	100.00
Rice and Rice-flour	—	—	—	34 873	2 866	100.00
Maize	—	—	—	215 919	12 950	100.00
Cassava Products	21 200	2 099	6.21	483 430	31 684	93.79
Vegetables	—	—	—	13 014	1 997	100.00
Potatoes	—	—	—	7 867	970	100.00
Chilies	—	—	—	2 180	605	100.00
Sago	—	—	—	33 037	2 453	100.00
Arachides and Peanut Oil	—	—	—	38 351	10 585	100.00
Area Nuts	—	—	—	45 956	8 891	100.00
Castor Beans and Oil	—	—	—	2 537	385	100.00
Gambir	4 178	868	62.00	2 578	535	38.00
Coca	411	309	100.00	—	—	—
Cacao Beans	924	821	76.29	208	252	23.71
Other Products	—	—	—	1 202	230	100.00
Total	3 429 021	808 691	65.37	1 710 749	428 375	34.63

Since the agricultural industry, in every respect, forms the basis of the economic structure of the Netherlands East Indies, this branch of industry has enjoyed the full attention of the Government for many years and has received from it considerable support and co-operation. The Government activities in this direction are entrusted to the Department of Agriculture, Industry and Commerce, which is established at Buitenzorg.

The first group of institutions, which aim at experiments in abstract natural science, are represented by the Government Botanical Gardens at Buitenzorg. This includes the Botanical Garden proper, which institution aims at giving as complete a survey as possible of the flora of the N. E. Indies. The Botanical Garden is in contact with practically all botanical institutions throughout the world for the exchange of specimens. The Mountain Garden at Tjibodas, which belongs to the Botanical Garden, serves mainly for the study of the flora and the fauna and the original forests of a tropical mountain range. The Herbarium and Museum for Systematic Botany is entrusted with the study and the making known of the flora of the N. E. Indies. The Botanical Laboratories are charged with the general biological, physiological and anatomical investigation of the plants. The Treub Laboratory contains a large working hall for the use of naturalists who are not connected with the Department. Numerous scientists from all countries come to work in this strangers laboratory for longer and shorter periods. The Phytochemical Laboratory is used for the phytochemical investigation of vegetable matter in the N. E. Indies. The Zoological Museum and Laboratory at Buitenzorg also belong to the Govt. Botanical Gardens.

The General Experimental Station for Agricultural Industry, has to supply

scientific information regarding all matters of a natural scientific and technical agricultural nature.

Attached to this Experimental Station are: the Institute for Plant Diseases, whose task it is to seek practical methods in the way of combating and preventing such diseases and animal pests; the Agricultural Institute, whose task it is to study all problems of a technical nature, which may lead to an increasing production of the different plantation crops; the Laboratory Section, with a chemical, a botanical and a micro-biological laboratory, as well as a laboratory for investigating the nature of the soil; an Experimental Garden for coconut cultivation at Menado, is specially occupied in furthering the interests of this crop, which is of prime importance for the East part of the Archipelago.

The Agricultural Intelligence and Research Service is specially concerned with native agriculture and aims at applying the results of agricultural science to indigenous agriculture as much as possible.

Since the new administration reforms in Java and Madura, the task of supplying the native agriculturalist with information has been entrusted to the Provincial Government.

Similar organizations are also to be found in the most important districts outside Java and Madura.

For the promotion of horticulture several horticultural officials and supervisors are attached to the Agricultural Intelligence and Research Service. This Horticultural Information Service only works in the principal fruit-growing centres.

Connected with these activities are those of the Section for Agricultural Economy, which, in the first place, collects and studies industrial data regarding native and estate agriculture, studies questions of a

general agricultural nature, makes valuations for the Government, carries out agricultural exploitations etc.

At this juncture something should be said regarding the care of the Government for agricultural education. The highest agricultural educational institution is the Secondary Agricultural School at Buitenzorg, which is intended to provide a secondary education for agriculture and forest craft so that the students can become proficient in the agricultural and forestry practice in that country.

In addition there are two Culture Schools in Java, where instruction is given for the lower positions on the estates or for the Government posts of agricultural or forest supervisors.

The elementary agricultural schools which, in previous years, were founded in Java and the Outer Islands, most of them with Government subsidy, have now been transformed into private Agricultural Industrial Schools on native lines, in which practical work and instruction in operating practice are the main features.

Finally in a few parts of Java, agricultural courses are given by "desa"-teachers, who are specially trained for this work by agricultural sub-advisors.

HORTICULTURE.

Every native house is surrounded by a farm yard, on which various fruit trees are found and on which, in addition, a great variety of vegetables and the like are grown. A diversity of crops is cultivated in these gardens of which the layman has no idea.

The area of the gardens in Java and Madura according to a rough estimate of the Central Bureau for the Statistics, at the end of 1924 amounted to 1.5 million "bouws" (1 bouw = 0.7096 ha).

Native horticulture is chiefly carried on under the supervision of the Government, and the activities of the information service are to be largely instrumental in developing this branch of economy from its primitive stage at present into a native horticultural industry.

The Section for Agricultural Economy has, in several places, the disposal of a plot of ground for experimental purposes in connection with the cultivation of fruit.

The only regular export trade is that of bananas to West Australia, which was effected with considerable assistance from the above-mentioned Section.

This export trade amounted to 148 000 bunches in 1928.

Since 1927 an attempt has been made to place tropical fruit on the European markets. It is due to the initiative of the Steamship Companies "Nederland" and "Rotterdam Lloyd" that the export of N. E. Indian fruit to Holland is beginning to assume such large proportions. Likewise fruit from Holland has been imported into the N. E. Indies, e. g. Westland grapes.

IRRIGATION, DRAINAGE AND FLOOD CONTROL.

More than in other tropical countries, in the Netherlands East Indies a highly developed irrigation system is of greatest importance. This Archipelago not only has an annual period of drought, but the fluctuations in rainfall during the wet monsoon have a great influence on the crop results, and may entail the most disastrous consequences if there is no adequate irrigation system. This principally applies to rice, the chief product of native agriculture in Java and in a few other, densely populated islands, it being also the staple food of the population. Sugar cane is the one among the European cultures, to

which irrigation is also of vital importance during the dry season, the cane being planted in this period.

In order to forestall the variations in the rainfall and make the cultivation of various crops possible, also during the period of drought, an adequate water supply belongs to the indispensable conditions for the prosperity of the N. E. Indian agricultural industry. As it will be known, irrigation water may be supplied from various sources: reservoirs, wells, rivers. In the N. E. Indies, however, practically only river irrigation of the gravity system is practised, which has the advantage that the silt, carried by tropical rivers in large quantities, will benefit the crops.

For several reasons, the native systems of irrigation in earlier times of a very high grade of development, have gradually deteriorated, continually creating more and more difficulties. As a consequence, irrigation has become a matter of Government care for some 7 or 8 decennia, but a more intensive action only dates from 1885, when this branch of Governmental activity was entrusted to a separate office in the Department of Public Works. Since then irrigation works have been designed and constructed without interruption, and some 160 million guilders have been spent by the Government on irrigation, drainage and flood-control, during the period up to and including 1925. How much has been accomplished already, but also how much useful work can yet be done, appears from the following table, giving a summary of the area irrigated by Government works in Java and Madura at the end of 1925.

Irrigated areas	ha	%
Irrigated areas for which permanent works have been put in operation	1 040 000	23
Ditto for which permanent works are under construction	183 000	4
Ditto for which permanent works have been taken under investigation	505 000	11
Irrigated grounds and grounds depending on rainfall, for which as yet no plans are made	2 840 000	62
	4 568 000	100

Independent of the irrigation canals, a system of drainage channels has been dug out for the purpose of draining the superfluous and used water. These drainage channels gradually collect the superfluous water and finally empty it into a river or into the sea.

Besides irrigation and the drainage of water other works are necessary in order to prevent the flooding of the lower course of the rivers. These works consist of the damming and the regulating of the rivers concerned, sometimes by digging out a complete new drainage channel for the flood water, sometimes by enlarging the river itself and building dikes or levees along its banks.

Sometimes for protection against drainage water it is not sufficient to enlarge the drainage channels, the ordinary water elevation in the river being too high for the drainage water to pass off. In this case it is necessary to resort to so-called "inpoldering" of the district to be protected, i. e. to artificial drainage by means of tide-sluices or pumping plants.

Several rivers do not contain sufficient water during the

dry season to supply the needs of the crops. In such cases a storage reservoir is made by means of an earthen or masonry dam in the river-bed, in which the superfluous flood water of the monsoon is saved. The reservoir Patjal, the largest one, which is now under construction and is situated in the Solo valley, has a capacity of 50 000 000 cub. metres. Other reservoirs are under investigation, especially in the Residency Tegal and on the island of Madura.

CATTLE-BREEDING.

Although agriculture is the principal means of livelihood in the N. E. Indies, cattle breeding should also be regarded as a highly important factor in the economic welfare of the native population. In contrast with conditions prevailing in western countries, the significance of native cattle breeding consists above all in rearing a draught-animal, either for agricultural purposes or for transportation. The production of butcher's meat is of secondary importance, while dairying, as a trade, is practically non-existent among native cattle-breeders.

An illustration of the large cattle stock, distributed over the different islands in the year 1928, is given in the following survey.

Islands	Horses		Cows		Buffaloes		Total	
	Head	%	Head	%	Head	%	Head	%
Java en Madura	248 125	35.12	3 532 495	80.18	2 125 030	64.90	5 905 650	70.42
Sumatra	44 535	6.30	400 424	9.09	355 664	10.86	800 623	9.55
Borneo	775	0.11	12 087	0.27	30 972	0.95	43 834	0.52
Celebes and Molucca's	157 098	22.24	96 111	2.18	394 030	12.04	647 239	7.72
Lesser Sunda Islands	255 964	36.22	364 791	8.28	368 361	11.25	989 116	11.79
Total . . .	706 497	100.—	4 405 908	100.—	3 274 057	100.—	8 386 462	100.—

A special service for carrying out certain measures of the Government is the Civil Veterinary Service, being also a sub-division of the Department of Agriculture Industry and Commerce.

One of the most important activities of this Service consists of devising means, either to prevent or to fight contagious cattle diseases.

Thanks to preventive and curative inoculations and serum injections, for which no fees are charged, the Veterinary Service has succeeded in successfully abolishing a number of cattle diseases. The general health condition of the N. E. Indian cattle stock may be considered very favourable in all respects.

The native horses all belong to the pony type, the withers measuring from 1.12 m to about 1.30 m in height.

N. E. Indian cattle is partly autochthonous, partly the result of crossing the autochthonous with an imported breed and partly the offspring of foreign thoroughbreds which have been imported. The indigenous cattle is said to be the descendants from the native "banteng" or wild cow (*Bos sundaicus*). The very best types are the Balinese cow, which is generally considered a domesticated "banteng", and the Madurese cow although it is heavier in build. In Sumatra too, one finds a different type of cattle, especially in Acheen (the Acheen cow) and in the Padang Highlands (the Sumatra cow).

The Indian cow is in the first place used as a draught-animal, but in the islands of Madura and Bali cattle is raised and exported especially for slaughtering purposes.

Dairying is almost entirely in the hands of Europeans; small dairyfarms are often managed by Chinese, but the native hardly ever occupies himself with dairying. Besides Dutch (Frisian) and Australian thoroughbreds, cross-breeds between this cattle and the indigenous and in a few

instances also the Bengal cattle are mostly sought after on dairy farms.

Owing to frequent crossing with British Indian breeds (mainly Ongole and Hissar bulls), stock breeders have succeeded in obtaining a heavier specimen, which often is worth double the value of the indigenous cow. This breed of cattle is furnished to the native population on easy terms, while in the case of the sicknesses or death of the animals assistance is readily rendered.

Although buffaloes are not classified into special breeds, the different types yet show considerable divergencies as to size and weight. Whereas in Java specimens occur measuring 1.36 m, animals are come across measuring no more than 1.24 m. The average buffalo-steer in Java measures 1.30 m.

The same as in western countries, the smaller domestic animals are of great economic value to the man of small means. While in Europe the frugal wants of such animals, as far as care and nourishment are concerned are a well-known feature, these characteristics are still more accentuated in a tropical country, where no protection against the cold is required and plenty of food is available all the year round.

Numerical strength of smaller domestic animals.

Areas	Goats	Sheep	Hogs
Java and Madura	2 200 924	1 291 677	98 211
Outer Islands ...	500 896	114 827	832 694
Total 1926 ..	2 701 820	1 406 504	930 905

To the poultry the Government has also given full care. In order to improve the indigenous poultry and

to assist and advise the owners of poultry, European as well as native, a separate Experimental Station for Poultry Breeding was established in the middle of 1928. At present experiments are made on five breeds imported from Europe, together with some indigenous sorts.

FISHERIES.

Sea-fishing is practised by the native population all along the coasts of the Archipelago, generally as a by-trade, together with agriculture or other means of subsistence. Along the North coast of Java and Madura, as well as in some coastal regions of the Outer Islands, where a greater density of the population offers more opportunity for ready sales, native sea-fishery has been able to develop into an independent branch of trade. In these centres, however, it shows the characteristic features of a business practised on a small scale, without any use of mechanic means.

In Bagan Si Api Api on the other hand, which has developed into one of the most important fishing ports of the world, the Chinese fisheries represent a considerable industry. In the year 1928 the total value of different kinds of fish exported amounted to nearly 5 million guilders, of which a value of over 3 million was destined for Java.

During the last few years, Japanese fishermen have settled in the larger fishing centres, who, by means of motor carriers, take the fish, caught on coral-reefs, to the shore, carefully packed in ice.

Along the North coast of Java, sea fish is reared in ponds on a large scale. This line of trade is especially carried on in the neighbourhood of large cities, such as Batavia and Sourabaya. For the greater part this business is in the hands of Chinese.

Other sea products are pearls, mother-of-pearl, troca and other shells, tripang (in the East of the Archipelago) and agar-agar, a kind of seaweed (in the western part of the Archipelago). Macassar is the main staple market of these products.

In order to promote sea-fishery, the Government has established a Laboratory for Marine Investigations. The sea water aquarium, which is open to the public on payment of a small admittance fee, is one of the remarkable sights of Batavia.

FOREST SERVICE.

When the forests of Java are mentioned, one thinks in the first place of the valuable forests of "djati" or teak, which grow so plentifully on the limestone hills of the residencies of Rembang, Samarang, Madiun and Kediri. Teak is also found elsewhere in Java, as well as in some of the Outer Islands, but the areas covered by teak forests in other parts are small in comparison to those in the above-named provinces. The area where teak forests grow in Java measures at present 767 900 ha.

The economic importance of teak wood is so great that there is always a tendency to classify all other timber found in the N. E. Indies, and used for commercial purposes, under the general heading of "jungle timber". Although the output of the jungle forests is increasing every year, their greatest value to the country, as a whole, is found in their hydrological function; they are, in truth, nature's way of conserving water supplies.

According to the latest survey of jungle forests, the area of forest reserves now totals 1 654 900 ha. The boundaries of these forest reserves are indicated by lasting boundary marks, the making of which represents a

great deal of work, as no less than 322 000 of such marks had to be placed over a length of 23 000 kilometres. About 69 % of the work is now completed, but new areas are still being annexed and added to the forest reserves.

The unclassed jungle forests, in so far as they are considered unsuitable for further annexation to the forest reservation, are intended for the expansion of native agriculture, as well as of the European estates. They approximately cover a surface of 575 000 ha, of which 434 000 ha are situated in West Java.

The total area of the jungle forests in the Outer Islands is considerable and has lately been estimated at 120 million ha, this being about 68 % of the total area of the Outer Islands. Following the practice adopted in Java, a considerable area will have to be reserved as protection forests, viz. about 6,1 million ha, a necessity which is self evident especially so in Sumatra, where large forest areas have already been cleared for European estates or for native agriculture. Moreover, other areas will also have to be reserved for the timber needs of the local population, or for local industries (tin and coal); the rest, which still covers several tens of millions of ha, may be exploited for their timber on a commercial basis.

The administration of the forests is entrusted to the Forest Service. All forests and waste lands are the property of the Netherlands East Indian or Native governments.

The work of the Forest Service is carried out by 5 divisions, viz.:

I. The division of working plans, subdivided into the Working-Plan Section proper and the Section of Forest Surveying and Mapping.

II. The Forest Research Institute.

III. The administration of the teak forests in Java.

IV. The administration of the mixed- and hill forests in Java.

V. The administration of the forests in the Outer Islands.



CHAPTER XXXVI.

MINING.

In the course of years it has gradually become evident that the various islands of the Netherlands East Indies contain an enormous mineral wealth. Apart from petroleum, Java's soil holds some iodine, manganese and sulphur, and recently gold and silver ores have also been discovered in the Bantam district (West Java). Sumatra possesses a great wealth of petroleum; coal, gold, silver and tin are also produced; iron, manganese, lead and zinc have been discovered in workable quantities. The islands of Banca and Billiton, and also some of the islands of the Rhio Archipelago, contain abundant quantities of tin and also some wolframite. Borneo is rich in petroleum, coal and iron, whilst also small quantities of diamonds, platinum and gold are found in this island. In Celebes and adjoining islands important quantities of iron-ore, containing nickel, have been discovered, and also asphaltrocks; a few gold-mines are worked on this island; copper has been discovered here too, but not in workable quantities. Bauxite, zinc-blende, galena and other minerals have been encountered on several islands.

One of the reasons why the mining industry, at its present stage, is of minor importance for the economic life of the Archipelago, is due to the fact that most of these minerals are found in the Outer Islands, where scarcity of labour and difficulties of transportation often prevent profitable mining. Only petroleum and tin mining could be developed on a large scale; the exploitation of the coal, gold and silver mines is of much less importance, and the other minerals, for the greater part, still await operations.

The Legal Regulation of Mining in the Netherlands East Indies is based on the Mining Act of 1899, in which the fundamental principles have been laid down, whilst further details have since been regulated by decrees. Here follows a few of the principal regulations now in force:

a. A complete division has been made between above ground and under ground, consequently between the ground rights and the mining rights.

b. A licence for prospecting minerals must be applied for to the Head of the Provincial Civil Service concerned. This licence can be granted in respect of a maximum of 10 000 hectares and is available for 3 years, which term can be prolonged twice, for a term of one year each. This prolongation will be refused if the holder does not show sufficient prospecting activity. If prospecting has not been commenced within one year of the granting of the licence, it is withdrawn.

c. Concessions must be applied for and granted, for the exploitation of the mineral wealth. They can be granted for a maximum period of 75 years and for a maximum area of 1000 ha, but solely to the discoverer in the legal sense; the finder — or bush ranger — has no rights to a concession, and can only be rewarded.

d. Licences for prospecting and for concessions are granted solely to Hollanders, inhabitants of the Netherlands or the N. E. Indies, also to companies, established in Holland or the N. E. Indies, of which the majority of the managing directors, or/and the directors, must be Hollanders or domiciled inhabitants of the N. E. Indies, living in Holland or in the N. E. Indies. Persons or companies, not established in the N. E. Indies, must at least be properly represented there.

e. Licence holders, as well as concessionaires, must pay annually a fixed duty of respectively 2½ and 25 cents per ha, and further 4 % of the value of the product exploited.

N. E. Indian mining at present shows the following status: For the directly governed regions and for the self-governing provinces 218 concessions were in force on September 15th, 1927, all of which have transferred their mining rights to the Government; 44 concessions were granted in the self-governing provinces, where these rights still belong to the provinces. To-day there further exist 5 Government works, viz., Banca (tin), Ombilin, Bukit Asem and Pulu Laut (coal), Tambang Sawah (gold and silver); 2 mixed working concerns: The "Nederlandsch-Indische Aardolie Maatschappij" (Netherlands India Mineral Oil Company) for the working of oilfields in Djambi, in the Bay of Aru and in the island of Bunju, and the "Gemeenschappelijke Mijnbouw Maatschappij Billiton" (Mutual Mining Company Billiton) for the purpose of carrying on the further exploitation of tin on the island of Billiton. Agreements have further been concluded, on the basis of the above mentioned standard-contracts, with the "Koloniale Petroleum Maatschappij" (the Colonial Petroleum Company) and the "Biting Petroleum Company" for the working of oilfields in Palembang and in Java and Madura, and with the "Bataafsche Petroleum Maatschappij" for the working in Palembang, Acheen and East Borneo. Finally some eight enterpriserscontracts have been made for the working of various kinds of minerals on behalf of the Government.

The Government activities concerning mining have been entrusted to the Mining Service. A separate Sales Department of Government Mining Products is in

charge of the marketing of tin, coal, gold and silver bullion and, apart from this, of a few activities of a commercial nature.

The working of tin in Banca is reserved for the N. E. Indian Government, which employs there a staff of over 150 Europeans and some 20 000 workmen. The mines, operated there, yield an average of some 60 % of the N. E. Indian production. The mines in the island of Billiton are worked now by the Mutual Mining Company "Billiton", a joint concern of the Government and the former Billiton Company, which is continuing the work of the latter. Its share in the Indian production amounts to an average of 37 %.

In Banca, the tin-ore obtained is smelted in the modernised "Vlaanderen" shaft-furnaces, on the island itself. Every mine was originally equipped with its own furnace; but in later years the smelting has gradually been centralized, so that now only some five central smelting stations are in operation.

Part of the Banca-production, and also the total production of Billiton and Singkep, is worked into tin-metal at Singapore, by the "Straits Trading Coy." against a certain remuneration per picul of ore, and is therefore bought and sold under the name of Straitstin.

There is a steam-central-plant in Banca (original power 13 600 h.p.), which is fired with Bukit-Asem and Pulu Laut coal. In Billiton there is a Diesel-plant (original power 9800 h.p.).

The production of the entirely modernized tin-mining in the N. E. Indies was in 1929 577 000 piculs of 61 76 kg.

The value of the gold- and silver-production in 1928 was 5, 6 and 2.9 millions of guilders, resp.

In view of the fact that, as regards the wealth of coal in numerous extensive regions, only very few details or none at all are available, the total stock of the Netherlands

East Indies can only be roughly estimated. This stock can be estimated at some 5—6 milliard tons, though a larger part of it cannot be taken into account for working in the near future.

By far the largest quantity of coal is found in Sumatra and in Borneo, and it is in these islands that the largest mines are worked. The best known of these are three Government enterprises, i. e.: the Ombilin collieries at Sawah Lunto (Padang Highlands), of which the stock is estimated at some 200 million tons, in three seams of an average thickness from 2.1 to 7.10 m: the Pulu Laut collieries, an island at the Southeastern point of Borneo, where coal is found in two seams, of which only the second, about 2 m thick, is worked at present; and finally the Bukit Asem collieries, situated at a distance of 12 km Southwest of Muara Enim, Residency Palembang, Sumatra. Excellent coal is found there in 4 seams, 3 of which are now worked.

The private coal mines are situated in the Residency South East Borneo. The principal producers are: the Rantau Pandjang colliery, the mines of the East Borneo Company and the Gunung Batubesar colliery: the other private production is spread over a number of smaller operating stations.

The N. E. Indian (tertiary) kinds of coal are generally distinguished from the European (carbonic) kinds by their high percentage of humidity and gas. Especially the first mentioned factor, which makes the coal very friable in the open air, must be regarded as a disadvantage.

The best quality of coal is produced by the Bukit Asem collieries. Here the originally almost ashless brown coal undergoes a natural process of enrichment (a kind of dry distillation) by the heat, developed on the intrusion of volcanic rocks (andesite), whereby the coal is transformed into varieties of a high caloric value, an-

thracite and cokes. The valuable fine coal from these mines is compressed into briquettes, which have proved to be excellent fuel for the engines of the State railways as well as for the boilers of men-of-war. This coal can be considered equal to Cardiff coal.

The total coal production in 1900 was 202 000, in 1928 1 703 000 tons of 1000 kg, of which 1 003 000 tons from the Government Mines.

The exploitation of petroleum in the Netherlands East Indies is almost entirely in the hands of the "Bataafsche Petroleum Maatschappij", a subsidiary company of the "Royal Dutch" and the "Shell Transport and Trading Company". This company accounts for some 95 % of the total N. E. Indian production. Its most important fields are situated in Borneo, but also the other fields of this Company, spread over Sumatra (Palembang, the East coast of Sumatra, Acheen) and Java (the former Residencies of Rembang and Sourabaya) are of importance.

Further must be mentioned the "Nederlandsche Koloniale Petroleum Mij." (the Netherlands Colonial Petroleum Coy.), established in 1918 by the American Standard Oil Company, and working in Palembang and Rembang; and finally the "Nederlandsch-Indische Aardolie Mij." (the Netherlands Indian Mineral Oil Coy.), established in 1921 as a mutual concern of the Government and the "Bataafsche", working oil-fields in Djambi (Sumatra).

The oil from the various producing regions is not equal in appearance or in composition, it can therefore be worked into various products. The principal working centres of the "Bataafsche" are: Balikpapan (Borneo), Pankalan Brandan (North Sumatra), Pladju (Palembang), Tjepu (Rembang) and Wonokromo (Sourabaya). The system of fractionized distillation is principally still applied in the N. E. Indies, whereby gasoline, kerosine,

and Solar and Diesel oils (heavy fractions) are consecutively produced. The remaining residue is then divided into asphalt and paraffin-residue, according as to whether it principally contains asphalt or paraffin, which can be worked into lubricating oil, paraffin and asphalt. To this effect it must be distilled again, during which process solar oil, lubricating or paraffin oil are produced in succession, after which a thick tar-like goudron or asphalt remains. This residue, or sometimes also mineral gas, conducted from the drilling plants, is used as fuel for the distilling boilers.

The American "cracking" process has also recently been introduced here, whereby the heavy oil is split up into lighter varieties and into cokes.

The production of crude oil in the N. E. Indies was 4 307 000 tons of 1000 kg in 1928, of which the "Bataafsche" Petr. Cy. has produced 4 000 000 tons.

The N. E. Indian soil is exceptionally rich in what is called lateric iron-ores (weathering deposits). The estimated stock of this ore in South Eastern Celebes, for instance, amounts to 370 million tons, in South Eastern Borneo to some 100 million tons; also in the Moluccas there are some tens of million tons.

M a n g a n e s e o r e is worked principally in the Djokjakarta-district, where it is found in an irregular bank from 1 to 2 m thickness, between layers of marl and limestone. It is shipped from there to Europe via the port of Tjilatjap. This ore occurs also in other parts of the Archipelago.

D i a m o n d s are found solely in Borneo, where they occur in the sand and gravel deposits of actual and former riverbeds. These diamonds are won by the natives by washing.

S u l p h u r occurs in pure condition in the craters of volcanoes, while p y r i t e is found all over the N. E.

Indies interspersed in eruptive and sedimental rocks.

Natural asphalt is found in large quantities on the island of Buton, where the deposits are worked by the Buton Coy.

Some rather important iodine-springs occur in the former Residencies of Sourabaya, Samarang and Rembang; those in the two first mentioned provinces are being exploited.



CHAPTER XXXVII.

INDUSTRY.

WATER-POWER AND ELECTRICITY.

Although about 6.6 million hp of potential water-power are available in the whole of the Netherlands East Indies, the distribution over the different islands does not by any means correspond to the requirements, at least it will not do so in the near future, a fact which stands in the way of a profitable employment of many of these sources of energy. For example, Java, which is the most densely populated and the most highly developed of the islands, possesses only 600 000 hp or scarcely more than one-seventieth hp per head. How little that is, can be seen from the fact that some Western countries are employing more than one horse-power per head of population. The greater part of the water-power is to be found in West- and Central-Java. In East-Java the topographic situation causes an unfavourable dividing up of the drainage areas of the mountain rivers, while a long dry monsoon is another unfavourable factor.

Of the other islands, Sumatra and Borneo each have about 2 million hp, Celebes about one million, and the remainder about one million between them. All these great sources of power are lying practically unused at present. How far it will be possible to develop them in the future is a problem about the solution of which nothing positive can be said yet.

In 1917 the Section of Water-Power and Electricity was created.

There are in Java 65, in Sumatra 4, and in Celebes 10 observation-stations set up in rivers and lakes; many of

these are equipped with registering instruments. The results of the observations are published annually.

Water-power concessions (for a capacity exceeding 100 theoretical hp) are usually granted for 40 years under conditions allowing for appropriation by the Government and on payment of a small tax. For a smaller capacity a licence is granted until further notice and subject to very simple conditions.

Electrical licences for public utility purposes (electrical services) are granted for a fixed period not exceeding 40 years; licences for private purposes (such as industries and commercial enterprises) are terminable at notice.

There were valid at the end of 1928: 76 water-power concessions (42 in Java, 34 in Sumatra) and 370 licences for electrical installations (279 for private enterprises and 91 for public utility purposes).

West-Java is the most developed district as regards the working of sources of water-power for the general supply of electricity. The light and power works of Batavia and environs, as well as the electrified railways around Batavia, have since 1925 been fed by means of a 70 000 Volts line from the Government power-station O u b r o u g on the Tjijatih river near Tjibadak; this station is equipped with two turbo-generator units of 5400 kilowatts each. It also supplies Buitenzorg and Sukaboemi with electrical energy. Distribution and retail in Batavia are entrusted to the "N e d . - I n d i s c h e G a s M i j ." and in Buitenzorg and Sukaboumi to the "G e b e o", a mixed public electric utility company. A second power-station, K r a t j a k, on the Tjianten, with 2×5500 kilowatts will be connected with this system in Buitenzorg.

For the supply of the plateau of Bandoung the Government has at its disposal the following water-power plants: B e n g k o k on the Tjikapundung with 3 aggregates of 1050 kW; P l e n g a n on the Tjisaruwa with 3 aggre-

gates of 1050 kW; and L a m a d j a n on the Tjisangkoui with 2 aggregates of 6400 kW. For the distribution of the power the "Gebeo" was formed, which concern started operations on January 1st 1920. Outside the scope of this distribution lies the radio-station Malabar, which for reasons of State is directly connected with the Government power-system.

Only one Government water-power station has been erected in the Outer Islands, viz. the T e i s power station on the river Ketahun (Bencoolen), which is equipped with 2 aggregates of about 740 kW. This supplies electrical energy for the Government gold and silver mines at Tambang Sawah and the private mine Redjang Lebong.

BRANCHES OF INDUSTRY.

Just as in the case of agriculture a striking difference exists between the plantations under European management and native agriculture, so the conditions of life in the N. E. Indies entail a corresponding differentiation in the case of the manufacturing industries, so that one can rightly make a distinction between European managed and native industries.

Western industries are those, which exist for the purpose of preparing the products of the plantation industry, such as sugar manufacturing, preparing tapioca-flour and fibre (agave and manila hemp), coconut-oil and (in recent years) palm-oil, also the numerous factories for tea, rubber, coffee, citronella-oil and alcohol.

Industries of predominant importance, connected with mining, are petroleum refineries, benzine distilleries, and petroleum-asphalt and paraffin works. Of great economic importance is also the tin industry and, to a lesser degree, the separation of gold and silver from the ores. A new

industry in this group of recent date is the natural asphalt industry.

Among the industries connected with native agriculture are numerous factories, which have no plantations of their own, but which are dependent for their raw material on the product of the native gardens. With the exception of the oil mills (for the production of coconut oil and, to a lesser degree, kapok-seed oil and ricinus oil), the factories of this group are of small compass, mostly in the hands of the Chinese.

There are to be mentioned the numerous rice-hulling works, the small tapioca-flour mills and, very greatly multiplied of late, the mills to grind the dried cassava roots (into "gaplek"-meal), a large number of small citronella-oil distilleries, works for the preparation of fatty oils (from coconuts and arachides), kapok cleaning and pressing works.

The coconut-oil industry is well known and, in one respect, notorious by reason of its phenomenal development during and shortly after the war, which was followed, however, by a serious crisis and the loss of much capital. The industry has gradually recovered and mills, that had closed down, have re-opened. Although they work principally for the home market, there is also a certain amount of export again.

The large number of modernised engineering works for the manufacture of agricultural products has called into existence a rather wide-spread mechanical industry, comprising a number of large works, several of moderate compass, and numerous smaller workshops. The active shipping industry also provides work for a number of engineering houses, while the railways and tramways possess many excellently equipped workshops for repair, erection and (partly) construction work.

The chemical industry is very small; the

most important representative is the Bandoung Quinine factory, which supplies the overseas market.

The cigar and cigarette industry has seen a very big development in recent years, especially the cigarette manufacturing branch, and it is still growing. In addition to a few very large factories, there are also a number of smaller works for the mechanical process of manufacture, all established in Java.

Among other industries there are to be mentioned the soap industry, which includes a number of larger works under European direction and many smaller ones mostly conducted by Chinese. There are also the manufacture of dyes and varnish, a few large tanning works, an explosives factory (for mining and agricultural requirements), a rather large number of firework factories, mostly belonging to Chinese, etc.

The printing industry is very well developed and commands a number of modern works, which are capable of turning out unexceptionable work in the field of book printing and illustration. The Government topographical office has an excellent map-reproduction plant.

Practically every town having a European population possesses an ice factory and there are also numerous aerated water factories.

Considering that the natives of the N. E. Indies largely supply their own requirements of clothing, foodstuffs, dwellings and household furniture, and that the population numbers over 50 million, the native industries are naturally important from a quantitative point of view. As to quality, however, they are still, with a few exceptions, on a primitive level.

Important also for circles beyond the native clientele is the plaited hat industry, which has substantially grown in recent years. The materials employed are chiefly pandan (for "Chapeaux bovins"; the material

is also wrongly called Bangkok straw in Europe) and bamboo (for "Chapeaux rotins").

The export of these hats, which are manufactured principally in West-Java, shows a rising curve. The industry provides employment for thousands; it is mostly carried on as a domestic industry and is very remunerative to the natives.

Next comes the batik industry in Java, which is very much localized and provides the native population with their national raiment. It is partly a domestic industry, but it is to a greater degree carried on in workshops.

The manufacture of "straw-wrapper" cigarettes has greatly increased of late. It is noteworthy that this expansion coincides with that of the general cigarette industry.

The products of native arts and crafts are excellent and show the peculiar artistic bent of the natives in the different islands of the Archipelago. These arts and crafts have no international importance and there is no export trade of any significance.

The duties of the Government in relation to the manufacturing industries are entrusted to the Department of Agriculture, Industry and Commerce and, in relation to mining, to the Department of Government Industries.

A sub-division of the former Department is the Industrial Section, which is an Intelligence Bureau both for European and Native industries. It possesses a laboratory for research work of a general nature and, furthermore, special establishments for the textile, ceramic and tanning industries, which also provide facilities for training in those branches; the present year has seen the addition of a fourth establishment, i. e. for the battick-industry.

There are no restrictions of nationality in regard to the

carrying on of any industry, except in the case of the Government monopolies (salt and opium).

Dutchmen have no priority at all over persons of other nationalities, and all that is required, is the observance of the country's laws.

It should be remembered that the Netherlands East Indies have no protective duties and the tariff is pre-eminently a fiscal tariff. The absence of protection, where the neighbouring countries have the advantage of protective measures, is the cause, on the one hand, of a competition that is frequently severe, while, on the other hand, the export market is very much restricted thereby.

L a b o u r is generally abundant although it is mostly unskilled; the standard of wages is on the low side. The quality of the work done by the natives is on the whole very adequate; they have given proof of a satisfactory competence; they are willing and tractable, and certainly handy. Their physique, however, is inferior.

Motive power is generally expensive and that applies both to steam, produced by burning coal, and to electrical energy, which latter is available in an ever increasing number of units and still affords great possibilities of extension.

T r a n s p o r t facilities are very good in Java and a few of the other islands; an extensive network of well-kept roads in Java renders possible an intensive employment of motor-trucks; the Government and private railways are fully equipped for large scale transport over the whole of this island. The inter-insular traffic is excellently provided for by the Royal Packet Navigation Company (K. P. M.); communications with the surrounding islands fully meet the requirements, and with Europe they are intensive.

As to L a b o u r q u e s t i o n s it may be remembered that there is what is called the "Penal Sanction", a

much criticised institution intended to be abolished in the long run; but a free labour-market must be created in the Outer Islands before the "Penal Sanction" can be dispensed with. Steps have already been taken in this direction by a few tobacco estates on Sumatra's East-Coast. These companies endeavour to form a nucleus of regular workmen, working without "Penal Sanction", by creating labour-colonies. Encouraged by the success, obtained with the first experiments, the extension of these colonies has regularly progressed during recent years, but it will require many years more before the local supply of labour will adequately meet the demand.



CHAPTER XXXVIII.

TRADE.

The rapid development of the productive forces of the N. E. Indies is shown by the figures of the foreign trade. During the period 1900—1928 the value of products exported rose from abt. 230 million to no less than 1588 million guilders, which means an increase of 688 %. During this space of time imports increased from 176 million guilders to 1008 million, i. e. by 573 %, while the total commercial traffic shows a progress from 406 million to 2596 million guilders or one of 639 %. Thus the exports have played the most important part in this general development.

Until the early years of the twentieth century, the mother-country had almost exclusively provided the capital for exploitation and exploration, but since the year 1905 foreign capital began to look for investments in these parts. The full extent, to which foreign capital had confidence in these investments, may be seen from the fact, that a short time ago the total capital, invested in agricultural enterprise in the Netherlands East Indies, was estimated at 2160 millions of guilders; 1690 millions were invested in Java, and 470 millions in the other islands. In Java 82 % of the capital invested was Dutch, the remaining 18 % was foreign; the proportions being different in the other islands, where 56 % was Dutch and 44 % foreign capital. The largest amount invested by foreigners was in rubber plantations, 164 millions of guilders, chiefly in Sumatra.

The N. E. Indies owe the very important position they hold in the commerce of the world to their valuable agricultural and mineral products, which find a ready

market everywhere. Of some of these products, this Archipelago seems to have a natural monopoly in the export-trade. In 1927 these islands produced 91 % of the world's exports of Peruvian bark, 75 % of kapok, 53 % of pepper, 37 % of rubber, 23 % of products of the coconut palm, 19 % of agava fibre, 16 % of tea, 10 % of sugar, 6 % of coffee and 20 % of tin.

An examination of the figures, concerning the trade of 1928, clearly shows the share the different nations of the world had in the export and import trade of this country.

From a total export trade of 1588 millions guilders in 1928, Singapore, as a port of transit, took 19.3 %, chiefly in rubber, petroleum and its by-products, Holland took 16.66 %, principally in tobacco, tea, tin, copra, rubber and coffee; the United States 12.77 %, for the greater part rubber, kapok, tea, agava fibre, coffee, tapioca products, tea, skins, tin, gum damar, pepper etc.; British India 11.13 %, mostly sugar; Great Britain 8.14 %, chiefly rubber, tea, tin, copra, pepper; France 4.37 %, mostly coffee, copra, rubber and tin; China 3.84 %, chiefly sugar and mineral oils; Japan 3.63 %, principally sugar and mineral oils; and Australia 3.21 %, mostly tea, rubber, mineral oils, kapok, etc.

Of the imports, consisting chiefly of textiles, iron and steel products, and foodstuffs, valued at about 948 millions of guilders during 1928, bullion and coin not included, Holland provided 18.12 %, mostly in cotton goods, appliances, machinery and tools, iron and steel-wares, cigars, tobacco and cigarettes; Great Britain 12.56 %, for the greater part in cotton goods, foodstuffs, iron and steel-wares; Singapore as a centre of distribution 11.64 %, chiefly in rice, other foodstuffs and cotton manufactures; Germany 10.86 %, chiefly in machinery, tools, iron and steel-wares; the

U. S. of America 10.16 %, chiefly in motor cars, motor bicycles etc.; Japan 9.88 %, mostly in cotton goods; Australia 2.74 %, chiefly butter and flour.

Whereas during the period 1900—1928 imports into Java and Madura increased from abt. 121 million to 657 million guilders and the exports from 157 million to 847 million guilders, which is resp. 544 % and 540 %, this increase in the Outer Islands was from 55 million to 351 million guilders as far as imports and from 73 million to 741 million guilders as far as exports are concerned, consequently calculated in percentages the figures are resp. 638 and 1015.

These statistics show us besides, how by far the bulk of exports is absorbed by only a small number of agricultural and mineral products. Practically this means that the prosperity of these Islands is getting to be more and more dependent upon the general condition of the world market for only a limited number of products, so that an eventual falling-off of the demand or complications in selling would doubtlessly be keenly felt in these parts.

In this connection, the necessity of extending the basis of economic life has been repeatedly pointed out from different sides, the growing importance of the oil-palm cultivation furnishing an example in this case.

If we take into consideration, that, during the year 1928, from the total export of agricultural products, up to 1237 million guilders, the share of native agriculture was glds. 428 million or 34.6 %, while that of European enterprises was 65.4 % or 809 million guilders, the important role played by native agriculture is convincingly illustrated.

Likewise upon approaching the subject of import trade into the N. E. Indies, we realize a striking feature that is characteristic of this business, whereby the activity chiefly

on agricultural lines and the nearly total absence of industrial enterprises is once more brought into special prominence. Thus textile goods, products of iron and steel, machines, etc. are the most important articles of import, together with considerable quantities of rice and other foodstuffs with a view to providing the native population.

The customs territory comprises the whole of the Netherlands East Indies, with the exception of Pulu Weh, a small island in the extreme North of Sumatra, of which the principal port is Sabang, and of the islands in the Rhio Archipelago.

In the matter of imposing import or export duties, no distinction is made between the countries of origin or destination of the goods. The law knows neither differential nor preferential tariff; the N. E. Indian tariff is a purely fiscal tariff and is in no wise intended to protect the national products. Duties on goods in transit do not exist.

As far as import duties are concerned, these are rated at resp. 6, 10 and 12 % of the value, according to the classification of the goods concerned, or at a fixed amount, according to measure, quantity and/or weight.

Export duties on some products, such as copra, hides and skins, cocoa-nut oil, tobacco, tin, are dependent on the selling prices, which are periodically verified and published at the beginning of every quarter of the year.

On alcoholic beverages, perfumeries, kerosene, volatile petroleum compounds and matches, excise duties are imposed.

To meet the cost of maintaining the very efficient Statistical Bureau of the Departement of Agriculture, Industry and Commerce, a statistical tax of $\frac{1}{4}$ % of the value is levied on all imports and exports. In a separate chapter the numerous activities of the Central Bureau

of Statistics and its great importance for the economic development of the N. E. Indies will be shown.

On the weight of merchandise, imported and exported at various ports, a levy has been imposed since January 1st, 1928, the so-called "Goederengeld". The Ordinance allows a maximum levy of fl. 1.25 per metric ton, but at no port the maximum has been enforced. The tax is as high as fl. 1.00 per metric ton at Amboina, Belawan (Medan), Benoa, Bencoolen, Emmahaven (Padang), Menado and Telok Betong. At Tandjong Priok (Batavia) it is fl. 0.40, at Cheribon fl. 0.30, at Samarang fl. 0.50 and at Sourabaya fl. 0.55 per metric ton.

A concession has been granted for such bulk articles as cement, maize, liquid and solid molasses, coal, tapioca roots and sifting.

COMMERCIAL ORGANIZATIONS.

The different groups of the wholesale, retail and commission business have formed various associations for mutual protection and co-operative action in all matters of common interest. The principal ones are the "Handelsvereniging en" (Merchants' Associations), representing the wholesale interests and established at Batavia, Sourabaya, Samarang, Bandoung, Medan, Padang, Sibolga, Palembang, Macasser, Menado and Bandjarmasin. Special mention should be made of the "Handelsvereniging te Soerabaja" and the "Handelsvereniging te Batavia", the two organizations, showing an especially high development.

The Merchants' Associations of Batavia, Sourabaya, Samarang and Medan publish, besides weekly market-reports, an annual review and report, giving information regarding the trade of the N. E. Indies in general and that of their own district in particular, which publications

are valuable aids in the study of the trade of the N. E. Indian Archipelago.

Of the same nature as the above mentioned "Handels-vereenigingen" are the Brokers' Associations, the Bankers' Associations, the Shopkeepers' Associations, etc.

Besides these purely private organizations, there are the Chambers of Commerce and Industry under the direct influence of the Government, the members being appointed by the Governor-General. They are intended as a link between the trade and the Government, but their activities are more of an official nature and they do not touch the business life of the N. E. Indies in such a direct way as the Merchants' Associations.

The Government organization, whose task it is to advise private trade in the interest of the community, is the Section of Commerce of the Department of Agriculture, Industry and Commerce, established at Buitenzorg. On request this Section supplies any one interested, with all desired information regarding the commerce of the N. E. Indies, while it also acts as an intermediary in establishing new commercial connections. It publishes a weekly bulletin, the "Korte Berichten voor Landbouw, Nijverheid en Handel", containing official information of Dutch and Foreign Legations and Consulates; communications on various commercial matters; several articles on important subjects of an economic and commercial nature; statistics both of N. E. Indian and foreign products, imports and exports; market-reports a.s.o.

Furthermore the Section of Commerce publishes yearly, both in English and Dutch, an extensive "Report of Commerce, Industry and Agriculture in the N. E. Indies", an "Importers' Directory" and an "Exporters' Directory". A small booklet "The Netherlands Indies", containing all particulars regarding population, climate,

government, agriculture, industry and commerce of these colonies, is also published in an English, French, German, Swedish and Spanish edition; it is abundantly furnished with statistics and photographs and regularly revised and improved. This booklet is an epitome of this "Handbook of the N. E. Indies", edited by the Section of Commerce.

Special mention should also be made of a series of publications of the Section of Commerce, both in English and French, now dealing with 16 various products of the N. E. Indies.

We should not omit to mention the Museum and Inquiry Office for Economic Botany, established at Buitenzorg which form part of the Section of Commerce.

STATISTICAL INFORMATION.

The "Central Bureau of Statistics", established in Weltevreden in 1924, has rapidly expanded its sphere of action and has become an institution of essential importance.

At present the Bureau consists of four sub-divisions, which are charged respectively with the revising and publication of:

1) Agricultural Statistics, 2) Commercial Statistics, 3) the Statistics of prices, index numbers and cost of living, and 4) the Statistical Abstract for the N. E. Indies.

The Statistical Abstract for the N. E. Indies holds a special place amongst the various publications of the Central Bureau of Statistics. This Abstract has been edited in the N. E. Indies, since 1922/23, whereby a permanent criticism and control on the incoming figures can be exercised and an earlier annual publication is made possible. The Statistical Abstract gives

an impression as complete as possible of the political and national economic conditions in the N. E. Indies, in so far as this can be expressed in figures. The English translation of all headings and indications contribute to the great interest, which this publication has found at home and abroad, where it meets with a ready sale.



CHAPTER XXXIX.

TRAFFIC.

SHIPPING.

The Netherlands East Indies occupy an exceptionally favourable position with regard to universal trade and shipping. Deep channels between the islands connect the surrounding, much frequented oceans. The traffic between Europe and South-Asia and Australia naturally converges in the Straits of Malacca, at the one end of which Singapore has become an important entrepôt for a considerable portion of the trade of the Netherlands East Indies. The main connecting routes from Port Darwin to Manilla, Hong-kong and Japanese ports run through the Eastern part of the Archipelago. The traffic with America, which has assumed large proportions since the cutting of the Isthmus of Panama, enters the Archipelago partly from the Northern side, via Japan, China or the Philippine Islands, and partly from the Eastern side, through the Torres Strait, after having called at the East Australian ports; the Sunda Straits and the Malacca Straits provide further connection with Africa and South Asia respectively. It is largely due to these favourable circumstances, that the shipping traffic in the Indian seas has developed to its present high level.

The results of hydrographic research are embodied in 346 sea-charts with accompanying descriptions, which comply with all requirements and guarantee safe navigation in the Indian waters. The major portion of the seas has now been charted and it is expected that about the year 1933 the trigonometric research of the sea will be completed, even into the remotest parts of the Archipelago.

A guarantee for safe navigation is provided, besides by the excellent sea-charts, by 157 guarded coast-lights, 10 lightships, 109 light- and lantern buoys, 227 unguarded coast- and harbour lights and 764 buoys and beacons. The coast lighting has been modernized by replacing the oil-lamps with wicks of the coast-lights by acetylenegas-lamps and kerosene or Blaugas incandescent lights and also by the introduction of revolving and flashing lights.

Stations for the Government Pilot Service have been established at Tandjong Priok, Sourabaya, Tjilatjap, Emmahaven, Palembang, Belawan, Arou-bay, Sambu, Balik Papan, Samarinda, Tarakan and Macassar, in order to ensure safe navigation in dangerous waters, which are subject to sudden changes, and for entering and leaving ports.

The wireless stations at Malabar, Weltevreden and Sourabaya supply daily time-signals to enable ships to verify their chronometers. The two last mentioned stations, and those at Sabang, Kupang, Medan, Bengkalis, Pontianak, Samarang, Macassar, Menado, Dobo, Manokwari, Ambon, Balik Papan and Tarakan, have been opened for wireless communication with vessels at sea; the construction of other stations is at a preparatory stage.

It is also of great importance to shipping, that docks and repair plants are available in various ports. Large docks are ready for use at Tandjong Priok, Sourabaya and Sabang, whilst a number of other ports are equipped for repairs of smaller craft.

Bunker-coal is available at Tandjong Priok, Sourabaya, Tjilatjap, Sabang, Padang (Emmahaven), Palembang, Macassar and Stagen (Pulu Laut). "Coal-conveyers" and floating bunker installations for the speeding up of bunkering are available at Sabang,

Emmahaven, Tandjong Priok, Sourabaya, Stagen and Palembang. Bunkering in other ports is done by manual labour.

Fuel-oil and Diesel-oil is available at Balikpapan, Tandjong Priok, Bula-bay (Ceram), Macassar, Palembang, Pankalan Brandan, Pulu Sambu, Sabang, Sourabaya and Tarakan, where the "Asiatic Petroleum Company", a subsidiary of the "Royal Dutch", possesses tank-installations.

The favourable position of the Netherlands East Indies with regard to the world shipping-traffic, the importance of this group of islands as exporter of agricultural and mining produce, and the extensive importation of manufactured goods, foodstuffs etc. have rendered possible an extensive shipping-traffic with foreign countries. A regular, gradual increase is consequently shown in the annual total tonnage of vessels from foreign ports, calling at N. E. Indian ports. It was only during the abnormal years of the World War, that the net tonnage of incoming vessels fell from some 15 million m³ in 1913 to about 9 million in 1918. But from 1919 onward the figures show again a fairly regular increase, so that in 1928 the net tonnage had already passed the 31 million m³ mark, which is an increase of nearly 250 % over a period of less than 10 years.

A review of the share of the various nationalities in this annual tonnage shows, that the most important relations in this respect are with Holland, at 43.91 % of the tonnage in 1928; the United Kingdom at 35.57 %; Germany at 7.33 %; Japan 3.38 %, the United States 2.30 %, China 1.49 %.

As to the development of shipping traffic since 1913, vessels under the Dutch flag account for nearly half of the tonnage (44 % in 1928); the largest percentage, 51 %, was reached in 1917. It is the N. E. Indian merchant

fleet which provides one half of this traffic under the Dutch flag. The English flag occupies the second place, with a percentage amounting to some 34—35 % of late years. The shipping under the Japanese flag showed an increase during the years 1918—1920 (12—14 %), but again fell below its 1913-figure of 3.75 %. Shipping under the American flag has also shown a regular and gradual fall, during late years. Since 1920 the German flag has again contributed to this shipping. During 1922 its share amounted to only 1½ %, but in 1924 it attained again the third place, the same as in 1913.

A regular shipping service between the N. E. Indies and the Mother-country is maintained by two big companies, established in Holland, i. e. the “N e d e r l a n d” Steam Navigation Company and the “R o t t e r d a m L l o y d”. The Netherlands Steam Navigation Company “O c e a n” may also be mentioned here.

The “Netherlands” maintains, in addition to the passenger-service, a regular freight-service between the two countries; besides calling at Batavia, Samarang, Sourabaya, Belawan Deli and Sabang, which are called at by the passenger-ships, the freighters also call at other ports in the Archipelago, such as: Cheribon, Tegal, Pekalongan, Indramaju, Pasuruan, Probolinggo, Panarukan, Banjuwangi, Tjilatjap, Telok Betong, Padang, Palembang, Macassar, Banca and Billiton.

Regular calls are also made by these freighters at Colombo, Penang, Port Swettenham and Singapore. The J a v a - P a c i f i c L i n e was reopened at the end of October 1927 and started as a 2-monthly service by the “Netherlands” together with the “Rotterdam Lloyd”; it was turned into a monthly service in September 1928. The route followed by these steamers runs: Sourabaya, Samarang, Batavia, Belawan Deli, Singapore and Manilla to Los Angeles, San Francisco and Seattle. On the

return trip these vessels call at Hongkong instead of Manilla.

The "Java-New-York Line" maintains a ten-eleven days service, together with the "Rotterdam Lloyd" and the Netherlands Steam Navigation Company "Ocean", following the Suez-canal route. The "Java-Bengal Line", between Java, Rangoon and Calcutta, and vice-versa, is worked in combination with the "Rotterdam Lloyd".

The freighters of the "Rotterdam Lloyd" follow a similar route to those of the "Nederland" Steam Navigation Company. The "Rotterdam Lloyd" participates in the Java-Pacific Line, the Java-New-York Line and the Java-Bengal Line.

The "Rotterdam Lloyd" forms, together with the sister-companies, the "Ocean" Steamship Company Ltd. and the "China Mutual Steam Navigation Coy. Ltd.", the so-called "Blue Funnel Line". This company maintains a regular fast freight service of several sailings per month, between European and N. E. Indian ports, vice-versa, and also participates in the Java-New-York Line.

The "Java-China-Japan Line" is established at Amsterdam. Its head-office for Asia is at Batavia and the company has further its own branches at Samarang, Sourabaya, Macassar, Manilla, Hongkong, Swatow, Amoy, Shanghai and Kobe.

The following regular services are maintained, with fixed dates of arrival at and departure from the principal ports.

Java-China Line West. A ten-eleven days service from Batavia to Hongkong, Amoy and Shanghai, and vice-versa. This service provides a good connection with the vessels sailing from Hongkong for Seattle, San Francisco and Vancouver.

Java-China Line East. A fortnightly service: Sourabaya, Macassar, Balik Papan, Manilla, Hongkong, Amoy, Shanghai, Dalny, Keelung, Hongkong, Manilla, Macassar, Sourabaya, Java coast.

Java-Japan Line. A thirteen days service: Sourabaya, Macassar, Balik Papan, Yokohama, Nagoya, Osaka (Kobe), Moji, Osaka (Kobe), Macassar, Sourabaya, Java coast.

Java-South China Line. A sixteen days service: Sourabaya, Balik Papan, Manilla, Hongkong, Swatow, Saigon, Sourabaya, Java coast.

Java-Saigon Line. A four-weekly service: Batavia—Saigon and Saigon—Sourabaya.

Of the foreign navigation companies, maintaining regular services to the N. E. Indies, we mention the following:

The "Hamburg-Amerikanische Paketfahrt A.G.", including the "Deutsch-Australische Dampfschiffs-Gesellschaft A.G." and the "Hugo Stinnes Linien" (between Europe, the N. E. Indies and Australia); the "British India Steam Navigation Company" and the "Asiatic Steamship Company" (between Java, British India and Burma); the "Burns Philp Line" and the "West Australian Joint Service" (between Java and Australia); the "Osaka Shosen Kaisha", the "Nanyo Yusen Kaisha" and the "Nippon Yusen Kaisha" (between Japan and Java; the last mentioned company between the N. E. Indies and Europe); the "Dodwell Castle Line"; the "Prince Line" (Far East Service); the "Kerr Steamship Co. Inc." ("Silver Line Ltd." and "Kawasaki Kisen Kabushiki Kaisha"); the "Isthmian Line" (North America); the S. Marittima Italiana (in combination with the Lloyd Triestino) etc.

The interinsular traffic proper is maintained almost exclusively by one N. E. Indian company only, i.e. the Royal Packet Navigation Company, founded in 1888.

The agreement between the Government and this company has been continually renewed. Among other regulations, it is fixed that all mails shall be carried by the various lines of the company against a fixed remuneration, while the Government has agreed furthermore to transport exclusively by the steamers of the Royal Packet Navigation Company all Government functionaries, goods and money. The company, on the other hand, has accepted the obligation of running regularly some thirty-one fixed shipping lines, whilst regulations also have been laid down concerning the frequency of sailings and the minimum capacity of the steamers.

This company runs, apart from these contract-lines and many non-contract lines, a few lines to foreign countries, i. e. the "Java-Australia Line" (from Belawan Deli via Singapore, Batavia, Samarang, Sourabaya and Macassar to Brisbane, Sydney and Melbourne, vice-versa), the "Deli-Straits-China Line", the "Deli-Rangoon Line", the "Java-Siam Line" and the "Saigon-Moluccas Line".

The fleet of the Royal Packet Navigation Company at the end of 1928 consisted of: 83 passenger-vessels and 46 cargo-steamers, with a total tonnage of 269,212 gross Reg. Tons. On the stocks are 13 passenger-vessels with a total tonnage of 11,420 and 7 cargo-steamers with a total tonnage of 10,872 gross Reg. Tons.

RAIL- AND TRAMWAYS.

It was not until the year 1862 that the first concession for railways was granted to a private concern, the Netherlands Indian Railway Company. In 1873 the line Buitenzorg — Batavia could be opened to traffic as the first line.

Whereas private persons failed to take the initiative, because there was not much hope for success in this enterprise, there was no other alternative but for the Government to take the lead in constructing the indispensable railway system. Since the year 1875 this task has been energetically carried out.

At the same time the construction of secondary lines was taken in hand. The first tramway, the line Samarang—Demak, was opened in the year 1883; at present a system of over 2500 km, mainly found in Central- and in East-Java and Madura, is open to traffic.

On the 31st. of December of the year 1928 the total length of the rail- and tramway system in Java measured 5473 km, of which 2802 km railways were of standard gauge (1,067 m); 205 km of broad gauge (1,435 m); 120 km of narrow gauge (0,600 m) and 2258 km of tramways with a gauge of 1,067 m (with one single exception: municipal trams).

Besides these rail- and tramways, open to general traffic, the Forest Service, as well as the large cultural enterprises (viz. the sugar industry), have constructed elaborate systems of field railways, the total length measuring some 7000 km. Sugar estates only have been responsible for 6500 km of field railways.

Whereas in Java railway construction has fairly reached its completion (also an electric railway has been built by the State-Railways from Batavia to Tandjong Priok), it stands to reason that in Sumatra this is not yet the case. Thus several separate lines, each of which are connected with a different port, have not yet been interconnected. In South Sumatra the Government tramways (the Lampong line and the Palembang line) were connected only very recently (in 1927). Actually a scheme for the construction of a system in Central Sumatra, eventually to be connected to the South Sumatra lines and extending to

the Government railways on the West coast of Sumatra, as well as to the rail- and tramway system of the Deli Railway Company, on the East coast of Sumatra, is being studied. The connection between the Acheen tramway in North Sumatra to the Deli Railway Company has already been established.

These figures illustrate the development of the N. E. Indian railway system:

Companies	Passengers (× 1000)	Luggage 1000 kg	Parcels 1000 kg	Express and carriage transport 1000 kg
State Rail- and Tramways ...	58 995	34 687	35 911	9 777 593
N. I. Railway Company.....	14 792	5 105	9 492	3 272 698
Deli Railway Company.....	6 910	3 788	2 546	1 029 694
Tramway Comp.	63 643	1 762	1 255	3 962 721
Total 1928..	144 540	45 342	49 204	18 042 706
1920..	178 859	67 078	74 281	14 073 631
1910..	69 876	35 186	14 684	7 367 865
1900..	36 703	19 658	7 247	3 476 165

MOTOR-CAR TRAFFIC.

For the economic life of the Netherlands East Indies the automobile has proved to be of utmost importance. Especially in areas, handicapped by the lack of railroads, and in districts, where no railroads can be constructed

for economic or technical reasons, contact between distant places can now be efficiently kept up by motor-car.

Motor traffic has also considerably stimulated the attendance and trade at native markets, on account of which these outlets of native agricultural products have increased. Many remote districts are no longer isolated, in consequence of which prices and wage levels are more equalized now.

Moreover the automobile does excellent service in passenger transportation. The taxi services in the larger cities; the auto-bus lines, kept up rather regularly between important places and their rural districts, and finally the motor-trucks with passenger accomodation have already adopted that sort of conveyance.

The development of the motor-car traffic may be seen from the table hereunder:

In use	Trucks	Cars	Motor-busses	Motor-cycles
Java & Madura..	3 756	40 154	2 545	10 505
Outer Islands ..	7 295	19 589	3 081	2 807
in 1928.....	11 051	59 743	5 626	13 312
„ 1927.....	9 107	49 938	3 253	10 125
„ 1926.....	6 573	44 744	1 725	8 324

The railway and tramway corporations try to resist the growing competition of motor traffic in all sorts of ways. By adapting their services more to local needs; by increasing the number and speed of their trains; by reduction of fares; by free transportation of luggage; by gran-

ting other facilities to the public and finally by maintaining their own auto-bus services, they try to regain the lost ground.

CIVIL AIR-TRAFFIC.

The Netherlands air service in Europe is maintained by the Royal Dutch Air Lines Coy. with its head-office situated in the Hague. This company is one of the oldest air services in the world. Since the year 1920 Holland has been connected with different European metropolises by aerial route. Besides European air traffic, the organization of aerial lines in the N. E. Indies, as well as the connection by air between Amsterdam and Batavia, has from the very outset been a subject, which fully occupied the attention of the above-mentioned company.

It was likewise the Royal Dutch Air Lines Coy. who co-operated in the first successful trip from Holland to the N. E. Indies, accomplished by the aviator Van der Hoop, in October 1924. In the summer of the year 1927, the pilots Geysendorfer and Scholte undertook the first passenger flight, when they piloted the American tourist Mr. van Lear Black from Amsterdam to Batavia and back again. Shortly afterwards lieutenant Koppen accomplished his first famous record-trip of a distance of fully 8000 miles within no more than 19 flying days.

In the N. E. Indies the military air service was established in the year 1914, furthermore the Navy has an air service, at its disposal while a few private persons occasionally practice aviation. However, the chief impetus towards the establishment of organized civil air-traffic in the Archipelago was given in Amsterdam in the year 1927. The Deli Company and the Netherlands Trading Association, in combination with other large N. E. Indian

enterprises, jointly established a concern well provided with capital, whose object was the organization of civil air-traffic in the Archipelago, in co-operation with the Royal Dutch Air Lines Coy.

This combine, called the Royal Netherlands East Indies Air Lines Coy., made an important agreement with the Government towards the end of the year 1927. The company has undertaken the maintenance of a daily air-service Batavia—Samarang—Sourabaya (450 miles) and return; Batavia—Bandoung (75 miles), and back again, as well as a weekly service Batavia—Singapore—Medan (900 miles).

The company further intends organizing taxi-flights, joy-rides, dusting, photographic and other aerial work.

During 5 years the company receives an annual subsidy of fls. 1 000 000 for the maintenance of the above-mentioned air-lines, which are operated by means of 3-engined Fokker passenger-aeroplanes.

Completely equipped aerodromes are now established at Batavia, Samarang, Sourabaya, Bandoung, Palembang and Medan. Furthermore some 30 landing grounds exist in Java, while in Sumatra and in the different islands of the Archipelago, situated between Java and Australia, landing opportunities have been provided for.

On the 1st of November 1928, the N. E. Indian air-routes have been opened. At present the air-routes connect Batavia—Bandoung, Batavia—Samarang—Sourabaya, Batavia—Palembang—Singapore, and Batavia—Palembang—Medan, while in all probability Sabang is also, shortly, to be included in the schedule.

The fleet consists of 7 aeroplanes; in April 1931 there will be ready two aeroplanes F XII, which can transport on long distances 12—14, on short distances 16 passengers. The aerial lines have proved to be a great success and during the first year 2 251 flights have been accomplished,

covering 434 000 km and transporting 13 769 passengers, 206 535 kgs luggage, 55 389 kgs cargo and 1514 kg mail.

Thousands of travellers prefer the rapid, cool and comfortable aeroplane to the old-fashioned modes of transportation.

At present the Netherlands air-service is showing by fortnightly mailflights between Amsterdam and Batavia, that it is possible to keep up a regular service in order to unite the Mother country with the territories in the Far East. A weekly service will be opened in October 1931.

Communication between Java and Holland, by means of the radio telephone, has already become a reality, and it is anticipated in the near future, that transport of passengers and mail, which takes about 25 days per steamer to cover the distance, will be effected in 8 to 10 days.

The interests of Great-Britain in establishing an aerial connection between England and Australia are similar to those existing between Holland and the N. E. Indies. Consequently it is by no means surprising that the co-operation between the two countries is an intimate one, whereas the N. E. Indian Archipelago is a link of considerable importance on the route between Singapore and Port Darwin.

No doubt a well organized civil air-service in the N. E. Indies will greatly benefit the economic development of these parts, while it will be conducive to the formation of closer national and economic ties, which unite the two parts of the Kingdom.

POSTAL, TELEGRAPH, TELEPHONE AND WIRELESS SERVICES.

Except a regular postal communication between the principal places in Java, a general postal

service in the Netherlands East Indies was not organized before 1862.

Its development was much assisted by the improvement of the roads and the development of modern traffic. Government and private railways were used from the very beginning as much as possible and also these were gradually improved. The so-called "ambulant service" on the Government Railways was introduced in 1891; by this service, under the care of the train-guard, common mail, is conveyed between places, where there are no Post-offices.

Since 1906, at several stations, where the express train does not stop, a mail-bag exchanging apparatus has been used so that at such places also mail can be delivered and collected.

On the 1st. of November 1928 a daily air-mail service (not on Sunday and ferial days) was established between Batavia and Samarang, and between Batavia and Bandoung, while since November 1929 a daily air-mail service between Batavia and Sourabaya, and a weekly air-mail service between Batavia and Palembang has been carried on. This service was further extended to Singapore in February 1930.

For the interinsular postal communication the Government has made a contract for the conveyance of mail with the Royal Packet Navigation Company, which maintains regular services between the principal ports of the Archipelago.

The mails for Europe are conveyed by the steamers of the "Nederland" Steam Navigation Company and the "Rotterdam Lloyd". The mail for Holland reaches its destination in 24 days from Batavia. The mails for other foreign countries are dispatched by first opportunity.

The following tables will give an idea of the development of the postal service in the N. E. Indies:

Year	Number of post-offices	Letters, post-cards and express-mail × 1000	Newspapers and other printed matter × 1000	Total (incl. postage-free-mail and samples) × 1000
1928	583	35 296	30 890	79 393
1920	572	30 879	24 892	66 721
1910	349	15 686	14 586	35 127
1900	219	8 936(?)	7 302	18 826

Foreign postal service (despatched and received).

Year	Letters and post-cards (including registered ones) × 1000	Printed matter × 1000	Total (incl. sampels etc.) × 1000	Money-orders amount × 1000 glds
1928	11 997	9 639	21 986	8 197
1920	8 692	5 034	14 111	4 074
1910	3 656	3 057	7 004	3 852
1900	1 615	1 520	3 243	1 952

The construction and the use of telegraphs were established by the regulations of 1876, which, apart from a few alterations, are still in force.

The first telegraph line between Batavia and Buitenzorg was completed in 1856. In 1858 the line Buitenzorg-Cheribon-Samarang-Sourabaya was opened. From that time onward the telegraph system has been continually

extended. The principal places in the various islands are at present connected by telegraph-lines, while submarine cables have been laid between these islands. The interior system is connected with the international telegraph system via Penang, Singapore, the Cocos Islands and Port Darwin; the cable via the island of Yap has been out of action ever since 1914.

The following table shows the development of the telegraph service in the course of this century.

Year	Number of offices	Total length of wire in kms			Number of telegrams	
		overhead lines	sub-marine cables	under-ground cables	Inland × 1000	Outland × 1000
1928	1 179	33 179	11 616	1 356	1 351	972
1920	882	29 424	9 982	806	2 267	700
1910	564	17 112	5 328		931	320
1900	383	11 268	1 651		415	293

The development of telephones dates from the year 1883, when some private companies began to construct telephone lines in important commercial towns of Java. Gradually the number of companies increased with the result, that in 1898 the number of telephone nets amounted to 35. The first long distance-connection was completed in 1894.

Since the Government took the operations of telephones in its own hand, the local as well as the long distance telephone-service has been enormously extended. Even the most distant estates in Java are nearly all connected with the centres of trade and traffic, while also into the Outer Islands the telephone is penetrating more

and more. This development of the Government telephone service is clearly illustrated by the following table.

Year	Number of ex- changes	Number of telephones in use	Total length of wire in km	
			Subscribers and district lines	Long distance- lines
1928	373	45,200	273,140	36,370
1920	251	32,000	153,300	21,800
1910	55	6,500	21 000	—

The first step in wireless telegraphy, taken in the Netherlands East Indies, was the erection of the Government coastal station at Sabang, in the extreme North of Sumatra, for the use of navigation. Next to this, however, the idea soon arose to utilize this new technical way at the same time for a closer intercommunication between Java and the Mother-country and between the islands of the N. E. Indies mutually.

In order to make experiments on a yet larger scale, the Government radio stations at Situbondo, Kupang and Amboina were opened for public correspondence and a regular service of wireless communication was established on August 1st. 1914. These experiments supplied a wealth of experience, so that, after the end of the Great War, it was possible to start improving the means of communication in the Outer Islands of the N. E. Indies. The Wireless Committee of 1920 issued an elaborate report: 40 stations for receiving and sending and 39 receiving stations for single-canal traffic were projected. From that time on, the execution of this scheme has firmly been taken in hand with the result, that at the present day 33 trans-

mitting and receiving stations and 22 receiving stations are in operation. Powerfull stations of the Postal Service are now erected at Bandoung, Medan, Amboina, Kupang, Pontianak and Makassar. Part of the messages from and to East and North Sumatra has of late years been directly carried on between the station at Medan and the Malabar station near Bandoung. In this way the telegraph land-lines and sub-marine cables are freed during the busiest hours, in consequence of which the transmission can be appreciably accelerated. The wireless system in the Eastern part of the Archipelago, however, has been extended mostly, in order to bring these remote districts closer together with other parts of the islands. To this purpose a number of auxiliary wireless stations and third class stations, together with some 17 receiving-stations, have been erected in the Moluccas.

The private stations of the "B a t a a f s c h e P e t r o l e u m M a a t s c h a p p i j" at Balikpapan, Tarakan and Bula, and the station of the "K o n i n k l i j k e P a k e t v a a r t M a a t s c h a p p i j" at Berouw are likewise to be considered as forming part of the extension of this wireless-scheme of intercommunication. They assist the Government wireless-service in the transmission of telegrams.

Finally there are 22 wireless-stations of the Civil Service, which, if possible, are also utilized for public interest.

The wireless traffic between the N. E. Indies and foreign countries is almost entirely handled by the radio-station at Malabar, situated at 25 km south of Bandoung. The technical facilities for transmitting messages likewise enjoy a good reputation, so that the wireless messages received in Java can be made use of abroad by utilizing Malabar as an intermediate station for the wireless-traffic with countries, which cannot be reached directly.

Direct communications have been opened not only

with Holland, but also with French Indo-China (Saigon), America, Germany, France (Paris), the Philippine Islands (Manilla) and with Siam (Bangkok). Negotiations have been opened with Japan, Hongkong, China, Australia and the Straits Settlements. A wireless-transit-traffic is introduced for the exchange of telegrams between America and Saigon via Malabar, while the communication with the last-mentioned station is at the same time utilized for the traffic with Siam.

For the transmission of the wireless telegrams the Malabar station also enters into direct communication with the wireless-stations within the boundaries of the N. E. Indies. Press telegrams are broadcasted to various places in the Archipelago, where newspapers are published, so that the news is simultaneously and rapidly carried to all places and in the meanwhile the telegraph land- and cable-lines are freed to the advantage of the other communication.

In the development of the short-wave radio a possibility was opened to get radio-telephonic communication with small energies over long distances. The plan then arose to establish a direct telephonic contact between Holland and the N. E. Indies and the prospect arose of a public radio-telephonic-service between the two countries. Either party has diligently and enthusiastically contributed to this scheme, so that in 1927 the communication was actually achieved by means of a short-wave-transmitter, constructed at the Malabar station. From that time on very successful cross-conversations have repeatedly taken place, while since March 1928 a regular broadcasting traffic was kept up twice a week for some hours at a stretch between Holland and the N. E. Indies. Apart from the Postal authorities, a great many private persons gratuitously used this new way of communication. A special cristal-controlled tele-

phone transmitter has been built in the radio-laboratory at Bandoung, which has won great renown in the radio world.

On January 7th. 1929 the telephone-communication between Holland and the N. E. Indies was opened for public use. One can speak now from the radio-studios at Bandoung, Weltevreden (Batavia), Buitenzorg, Cheribon, Djocjakarta, Kediri, Malang, Samarang, Sukaboumi, Sourabaya, Solo and Tjepu with the telephone booths at Amsterdam, Arnhem, Breda, Deventer, Eindhoven, the Hague, Groningen, Hengelo, 's Hertogenbosch, Leeuwarden, Maastricht, Middelburg, Rotterdam and Utrecht in Holland, and with all the telephone-booths in Germany.

From January 7th. 1929 till the end of 1929, 2398 radio-telephonic conversations have been held between the N. E. Indies and Holland, and 1211 between Holland and the N. E. Indies.

ROADS.

The building and maintenance of roads in the vast area of the Netherlands East Indies is of the utmost importance for that part of the Kingdom. With the exception of certain agricultural centres, the larger portion of this area is as yet greatly lacking in economic development.

The economic progress of the country and its inhabitants together with the development of public traffic necessitated a systematic plan in regard to the extension of existing road systems that had become inadequate in the course of times.

For Java, Sumatra, Borneo and Celebes different road programmes have been made up and are now partly in course of execution. In these plans provision has been made in the first place for the necessary connection of already existing roads. Connections, aiming at the laying

open of more remote regions for public traffic, have likewise been embodied in the road building schemes. For obvious reasons efforts are being directed also towards connections with rivers, which are made navigable where necessary.

First of all a general road plan was fixed for Java (in 1912), comprising principally a Northern and a Southern main highway, running in the longitudinal direction of the Island and coinciding for the greater part with the well-known main (post) thoroughfare of Daendels. In addition, half a dozen cross connections have been projected between the two above mentioned main roads.

Corresponding to the general road scheme, local road building plans have been drafted covering the decentralized territories of Java, the expenditure of which may now be roughly estimated at 75 million guilders.

For the island of Sumatra a general road plan was projected in 1914. In view of the greater difficulties to be overcome in this territory on account of topographical conditions and the greater scarcity of population, this plan has not been executed beyond connecting the more important populated and agricultural centres in the hinterland with the sea-ports or staple places alongside the navigable rivers. The expenditure, involved in the construction and improvement of the roads according to this programme, may be estimated at approximately 60 million guilders. Besides this general plan the construction of more connecting roads has been carried out or contemplated with a view to a better economic development of different regions. The expenditure involved is approximately f 28 000 000.

For the two provinces of Borneo, i. e. the Western Division and the Southern and Eastern Division, road-building programmes have been made, which, for the time being, are confined to the construction and improve-

ment of roads in such parts of these divisions, as show the greatest development. The estimates of these projects approximately amount to 20 million and 11 ½ million guilders respectively.

With regard to the island of Celebes, a road-building programme has been drafted for the Minahassa in the Residency of Menado. The total cost of this plan was estimated at the time at about 5 million guilders.

In South-Celebes the improvement and construction of a few main roads are on the way, which, according to the present scheme, will involve an expenditure of about 5 million guilders.

All the above-mentioned road-building programmes are being executed, at present.

HARBOURS.

The coast line of the N. E. I. Archipelago has a length proportionate to the circumference of the earth. After the development of modern shipping, when ships were increasing in size, when the inland roads were improving and the productivity of the land was gaining importance, there was everywhere an urgent need for modern, well-equipped harbours. About that time the Government steadily began to modernize the ports of the Archipelago. In the course of years down to the end of 1927 more than 160 million guilders were spent on laying out and extending the various harbours. Although not all ends in view have as yet been attained, a great many modern well-equipped harbours, comparing well with those abroad, could, in so short a time as twenty years, be found in the N. E. Indies.

By far the most important harbours of Java are Tandjong Priok, Sourabaya (Tandjong Perak) and Samarang. In these commercial towns, about 27 % of the total

shipping traffic of the N. E. Indies is concentrated, 88 % of the Java imports and 74 % of the exports of this island according to the value.

The harbour of Tandjong Priok, situated at about 5 miles eastward of Batavia, consists of an outer harbour and 3 inner basins. The outer harbour encircles a water area of 140 ha enclosed by 2 moles of a total length of 4,500 m. Of the 3 basins the first is 1100 m long and 185 m wide, the second 1000 m long and 150 m wide and the third, the completion of which will only be taken in hand when it will be needed, is about 1000 m long and 215 m wide. The channel of the outer harbour has a depth of 9 m during low water; along the borders on either side thereof, comprising a total water area of 85 ha, vessels of a less heavy draught can moor buoys. The northern part of the western boarder of the second harbour can likewise be made accessible for ships of 12 m draught.

As to equipment, Tandjong Priok fully answers modern requirements. At several points along the harbour there is an opportunity to take in oil. An aerodrome has also been established.

The harbour complex is connected with the old Batavia harbour by a canal; the connection between Tandjong Priok and Batavia (Weltevreden) is kept up by a splendid high-road and a double electric railway.

In the harbour of Sourabaya the outer quay (1200 m long), the front quay (300 m long) and the inner quay (800 m long) of the northern pier are capable of berthing ships of 9 m draught. Along the eastern side of the basin the latter continues in a similar quay of 160 m. Along the western pier of the basin a quay wall (Coal or Genoa quay) is built, 920 m long, for ships of 9 m draught, while the Holland pier, 750 m long, built in the basin at a distance of 150 m and parallel to the Genoa quay, offers

a total quay length of 1650 m to ships of 10.50 m draught. If necessary, these quays can be rendered accessible for ships of 12 m draught by dredging.

For oil tankers a pier has been built north of the Genoa quay.

The Sourabaya harbour has also been equipped with all mechanical appliances. It has a direct communication with the economic centres of the hinterland by broad roads and railway lines. An aerodrome and native and European dwelling quarters have been established on artificially raised ground.

As to the harbour of S a m a r a n g ocean-steamers anchor in the roadstead. The harbour, consisting of some prao-basins, has a total area of 18.5 ha. The harbour has a quay of about 1400 m and is provided with large go-downs. The quays offer berthing accomodation to vessels of about 2.50 m draught.

The mutual significance of the many harbours in the rapidly developing O u t e r I s l a n d s for the international commercial traffic appears from the following figures, representing the total value of foreign trade.

Harbours	Imports 1928 %	Exports 1928 %	Total Trade 1928 %
Belawan	22.9	24.0	23.7
Palembang	11.5	9.7	10.2
Padang	6.7	4.1	4.9
Pontianak	4.4	3.6	3.8
Bandjarmasin ...	2.3	2.9	2.7
Macassar	7.8	5.6	6.3
Menado	3.2	1.3	1.9
Other Harbours			46.5

The most important harbours have been managed, as if they were independent concerns. The aim is to organize these concerns in such a way, that not only the costs of management, but also the interest and the discharges of the capital invested in the harbour works are defrayed. To this end the ships and goods are subjected to pay compensations, viz. the dock-dues, varying between 1 cent and 6.5 cent per gross ton of ship capacity and the port due, varying between 30 cent and 1 guilder per gross ton of weight of imported or exported cargo. Besides these, modern cargo handling facilities such as quays, godowns, cranes, means of transport can all be rented; drink- and boilerwater are also supplied. The following tariffs have to be paid: for the use of quays and landing stages 3 to 8 cent per hour for every occupied metre; for the use of godowns 3 to 6 fls. per 24 hours per 100 sq. m; for the use of discharging and loading cranes fls. 2 to 30 per hour per crane; for the use of floating cranes of 50—75 ton fls. 60 to 200 per crane per hour; for the use of tugs fls. 30 to 75 per tug per hour; for the supply of drink- or boilerwater fls. 1 to 1.50 per ton.

TOURISM.

There are especially four things, regarding which a tourist would like to have some certainty, before he plans to visit any country, viz. what the climate and sanitation are like; what the transportation facilities are; what sort of hotels there are and what is worth seeing. A full discussion of the climate and sanitation, transportation facilities and roads will be found in other chapters of this handbook.

Java is plentifully supplied with hotels. There are in the island somewhere in the neighbourhood of 200 hotels,

ranging all the way from palatial modern hotels in the larger cities to small country inns in the rural centres. The prices, of course, vary with the accommodation and the type of hotel; a complete list of all the more important hotels with their facilities and prices may be obtained gratis from the Travellers Official Information Bureau, Noordwijk 36, Batavia, Java. This hotel service is supplemented by a large number of Government "rest-houses", the *Pasanggrahans*, which have been built for the convenience of Government officials, travelling to places that are too small to support a commercial hotel. Tourists may sometimes obtain permission to use these *pasanggrahans* by applying to the Government official directly in charge of them. The accommodation offered is usually no more than sleeping quarters and simple native style meals; the prices are low. No permission is granted to use the *pasanggrahan* in a place, where there is a commercial hotel.

Java is a land of picturesque natives and quaint, old-time customs, many of them handed down for generations by the traditional authority of village chiefs and old *Hadjis* and never committed to writing or formally systematized, yet all the more binding for that very reason. The antiquary may study ancient Hindu relics that bear comparison with any in India proper. The great *Stûpa* of the Borobudur is unique of its kind and the temples of Mendut, the Prambanan, Kalasan, and the Diëng Plateau (to mention only a very few of the best known) are marvels of the ancient Indian religious art. It is doubtful, whether there exists in the world a finer or more imposing figure of the Buddha than the central statue in the Mendut temple.

To the lover of scenic beauty, Java offers mountains and volcanoes, some active and some extinct, in a tropical setting, unequalled in any other country. There are rivers

and lakes, nestling in the valleys of these mountains, that defy description, and the more rugged beauty of the Pre-anger Highlands bears comparison with the best that other countries can offer. When we add to all this the romance and colour of an equatorial island-garden, what other land can offer the varied attractions that may be found in Java? If we exclude the surrounding islands of Sumatra, Bali, Celebes and the Moluccas, the N. E. Indies as a whole certainly become without question the peer of tourist resorts in the world.

The lover of sports finds in Java an opportunity for all sports that are not dependent upon snow and the winter cold. Golf, tennis, boating, swimming, mountaineering, cricket, hockey and football may be had in various parts of the island, as well as other sports too numerous to mention, but which include big-game shooting and gunning for pigeon, snipe and the like. To the naturalist the N. E. Indies offer a unique flora and fauna including many specimens to be found in no other place, to mention only one example of each, the Giant Lizard of Komodo (which may no longer be hunted or removed from the island) and certain specimens of orchids. To the anthropologist great stretches of territory are offered, in which his science has never yet been applied.

A more complete outline of the varied attractions and fuller details of travel facilities, hotel accommodations and the like may be obtained from the Director of the Travelers Official Information Bureau (mentioned above), either by personal application or by letter. This Bureau is a non profiting institution, operating under Government supervision for the purpose of giving all help possible to travellers in the N. E. Indies or to persons intending to visit the Archipelago. It has published a series of descriptive folders, which may be had gratis on application, and a number of books bearing on the general subject of

tourism in the N. E. Indies, foremost among which is "Come to Java", which may be obtained at the price of florins 1.25 (that is, post free, at Straits Dollars 1.00, American Dollars 0.60, or 2/8 English or Australian currency). The Bureau is always glad to co-operate with visitors in the planning of tours of any length, although it is recommended that to see the country properly, at least 12 days should be allowed for Java, 5 for Bali, and 10 for Sumatra; it is even better, if the tourist can stay a longer period in the Archipelago.



SECTION C. — THE NETHERLAND
TERRITORIES IN AMERICA.

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THE NETHERLAND TERRITORIES IN AMERICA.

CHAPTER XXXX.

SURINAM.

The West Indian territories of the Kingdom of the Netherlands comprise in unbroken possession, since the peace of Paris of the 20th November 1815, the colony of Surinam (Dutch Guiana). It covers an area four times the size of the Mother-country and has a population of 149 000 inhabitants. The territory is bounded by French Guiana (Cayenne), British Guiana and Brazil. Its area comprises about 160 000 square kilometers, of which over 2 million acres of fertile clay soil in the Northern part offers splendid opportunities for agricultural enterprise.

Surinam is situated in the tropical zone between the 2nd and 6th degree N. L.; the climate is hot and moist. No change of seasons is known; only the dry and the wet season are found there. During the long rainy period — from the middle of April to the middle of August — the rainfall is torrential; the annual rainfall at an average of 193 days, is 2275.6 mm, being more than three times that of the Mother-country. A meteorological service has been in existence since 1905 which carries on its observations in the Botanical Garden of the Agricultural Experimental Station.

The population of Surinam consists of abt 59 000 natives of Surinam, 33 000 British Indians, 26 000 Dutch West Indians, 17 000 Forest negroes, 1400 Europeans

(of whom 700 are Dutch) and the remainder, about 10 000, are indentured labourers from Java and 16 000 free Javanese. The capital of Surinam, Paramaribo, has over 46 000 inhabitants.

The country, as regards hygienic conditions, is on the whole as suitable to Europeans as most of the healthy parts of Europe. The birth-rate is favourable compared with the average European rate. The civil medical service is combined with the military service under a health officer.

The government of Surinam is vested in a Governor, appointed by the Crown of the Netherlands, who is assisted by a governing council, composed of the Government Secretary, the Attorney General, and other members appointed by the Crown. The legislative power is exercised by the Governor and the Colonial States. The members of this body are elected by the inhabitants, according to an elective system based on earning capacity; they are elected for 6 years and their number is not less than 13 and not more than 25. There are 8 Government departments viz: the Office of the Attorney General (the highest judicial authority is the Court of Justice); the Financial Administration (to which also belong the Postal and the Telegraph service); the Immigration Department; the Agricultural Experimental Station; the Public Works and Traffic Department; the Medical Service Department; the Education Department (Public Worship and Poor Relief) and the Government Secretariat.

The armed force of Surinam consists of a contingent of infantry. The country is divided into 12 districts of which Paramaribo is one. The other districts are governed by 5 districts commissioners, assisted by district secretaries and clerks.

In financial matters the Mother-country has never hesitated in coming to the colony's assistance. Annual subsidies have been given to provide for Surinam's

development, the Netherlands' Government having already spent some 50 million florins in aid of agriculture, mining, commerce and public works in the colony. Surinam has no separate coinage but uses the same currency as the Mother-country.

The taxes levied by colonial ordinance comprise six groups: Import duties and Excise, Patent Taxes, Direct Taxes, Dominional levies, Retributions and Special levies (medical taxation, agricultural rates, etc.).

Among the banks the "Bank of Surinam", founded in 1865, is the oldest. It is an issue bank (putting notes of from 5 to 1000 florins into circulation), a discount bank and a mortgage bank. The head-office is at Amsterdam; branch offices are established at Paramaribo and Nickerie.

In 1918, the West Indian Agricultural Bank was established, which grants credits to estates. There are also in Surinam 8 Agricultural Loan Banks with about 5000 members. The Colonial Savings Bank (of 1904) and the Amsterdam Savings Bank (of 1918) take charge of the savings of the native population.

The oldest and principal means of existence of Surinam is agriculture, the chief products being sugar, coffee and rice. The cultivation of cacao has been supplanted by the increasing coffee production. Cotton cultivation shows signs of reviving. Out of about 38 000 hectares of fertile clay soil under cultivation, 12 400 hectares are used for agricultural purposes and 25 600 hectares for vegetable growing. Concessions for 43 000 hectares have been granted to estates and for 98 000 hectares to small agriculture. According to available statistics Surinam in 1927 produced 15 573 tons of sugar, 30 367 bags of coffee of 100 kilos, 14 869 tons of rice, 1574 tons of ground-nuts, 372 000 bunches of bananas, 2107 bags of cacao of 100 kilos, 2 233 000 coconuts, 8786 tons of maize.

Live stock chiefly consists of cattle, pigs, goats and poultry. The cattle come for the greater part from Guiana. Dairy produce, made locally, has already found an outlet in the country itself and there exists a regular sale of fresh table butter.

In horticulture, land may be obtained in ownership, occupation and on lease. Settlers may obtain it free of charge for a period of 6 years with exemption of all land taxes and trade dues. The land rent amounts to from 6—10 florins, per hectare, per annum. Outside such establishments land may be obtained in ownership after 2 years of cultivation free of cost at an annual payment of 50 cents per $\frac{1}{4}$ hectare.

The trade balance of Surinam alternates between profit and loss. From 1923 to 1927 the results were as follows (in florins):

Year	Imports	Exports	Balance favourable	Balance adverse
1923	7 885 100	8 388 300	503 200	—
1924	7 496 400	7 409 400	—	87 000
1925	9 474 100	9 932 300	458 200	—
1926	10 020 500	7 689 600	—	2 330 900
1927	9 088 700	11 834 300	2 745 600	—
1928	9 194 900	11 684 800	2 489 900	—

The principal articles exported are:

sugar (in 1929 15 million kilos), coffee (2 381 000 k.), oranges (1 307 200 k.), molasses (750 600 litres), rum (467 000 litres), balata (400 000 k.), bauxite (215 800 tons). The principal articles imported are: clothing, haberdashery, foodstuffs, manufactured iron goods and agricultural implements.

The industry of Surinam is of course closely connected with agriculture; a large portion is devoted

to the manipulation of the produce of the estates, either locally (sugar, cacao and coffee) or in factories (rice mills, coconut oil mills, etc.). Besides there are a number of industries, which provide the immediate requirements of the population, i. e. saw-mills, goldsmith's shops, straw plaiting works, charcoal factories, tanneries, match factories, rope-walks, soap factories, etc. Manual industries are met with amongst the Indians and Forest Negroes; household labour is performed by Creoles; fishing by Natives is only undertaken for their private needs.

To the mining industry of Surinam gold digging, formerly so flourishing has gradually become of little importance. On the other hand, the bauxite industry, which originated in 1916, has made tremendous progress. It furnishes aluminum ore and is in American hands, and it provides, on an area of 3200 hectares, a good living for many workers. Iron is found also, but not produced so far, whilst the exploitation of petroleum wells (in Nickerie) is as yet uncertain. There are further possibilities, such as quicksilver ore, mica, slate and porcelain clay.

F o r e s t r y has only so far cleared a very small portion of its extensive field of labour. Efforts, to exploit forests and export timber have recently given some quite appreciable results, and are being continued. Balata derived from the bullet tree, has been exported to a value of over one million florins and appears to be much in demand for driving belts, golf balls and for insulating purposes; the temporary depression promises soon to come to an end.

Traffic requirements, although not quite as exacting in a tropical colony like Surinam, as in a fully developed country, are nevertheless met by a fair system of highways and railways, warranting reasonable facilities. The Government are doing the needful for developing the system.

In this connection it is to be observed that a good deal of the traffic into the up country can be conveniently kept up along the waterways. The Government run a regular steamlaunch service on the rivers for passengers and goods from the capital to the estates. Private motor-boats also navigate the rivers. There are regular connections by sea between Paramaribo and the coast towns of Nickerie and Coronie, and to Albina.

Of the foreign steamship traffic Surinam obtains a fair share. There are regular services to the Mother-country, the United States of America and to some parts of the West-Indies. The Royal Dutch Steamship Co. of Amsterdam (with which the former Royal West-Indian Mail Service is amalgamated) keeps up a three-weekly service to Paramaribo. Also the French mail-boats call there every month, the Columbian Steamship Co. has a fortnightly service between New-York and Paramaribo, and steamers of the Ocean Dominion Steamship Corporation likewise call monthly.

The work of the Postal, Telegraph and Telephone Services of the country is carried on at the district commissioner's offices. The lines of the telephone system of the country have a length of 1063,5 km. Since 1925, Surinam also has had its wireless telegraphy and wireless communication exists with the Mother-country. Broadcasting has been carried on with the Netherlands since the Queen spoke with Paramaribo on the 31st of May 1927.

E d u c a t i o n in Surinam is given in Kindergarten, elementary-, secondary- and higher secondary schools. The highest class in the public Hendrik School and the Roman Catholic St. Paul School is on a par with the 3 years' course of the Higher Municipal School in Holland. The compulsory school age is from 7 to 12 years. The Dutch language is used; Negro English has to be taught in the lowest class of the primary schools. An industrial

school, two straw-hat-plaiting schools, a commercial course, a medical school and an engineers' training school, provide for special requirements. In this connection special mention should be made of the great work performed by the Evangelic Brotherhood (numbering 30 000 members) for the educational, social, intellectual and moral advancement of the Forest Negroes and the Indians.



CHAPTER XXXXI.

CURAÇAO.

The name of Curaçao designates the dominion of the Dutch Crown comprising the Dutch Antilles viz: the three Leeward islands of Curaçao, Aruba and Bonaire, and the three Windward islands of St. Martin (of which the Northern portion is French), St. Eustatius and Saba. The first three islands are situated in the neighbourhood of the Venezuela coast, 2000 miles from New-York. The six islands have a joint area of about 1200 square kilometers. Their average temperature is 80° F.

Like Surinam, Curaçao is under control of a Governor, assisted by an Government Council, composed of one Vice President and three members appointed by the Crown. The 13 members of the Colonial Council are likewise appointed by the Crown. The five other islands are under the administration of Commanders appointed by the Governor. They are assisted by 2 Rural Councils, who are chosen by the electorate for 4 years. The Commander and the Rural Councils jointly constitute the Police Council.

An Attorney General acts as Public Prosecutor at the highest tribunal, the Court of Justice. He, like the members of this Court, is appointed by the Crown. The defensive force consists of a contingent of infantry of the Dutch Indian army, stationed at Willemstad. Besides this there is a military police, which has shortly replaced also the local police on the other islands.

The centre of the economic life of the Dutch Antilles is Curaçao. This island is very favourably situated for the navigation and for oil and coal bunkering purposes. During recent years it has shown rapid development.

The port of Willemstad, the capital, both as regards number and tonnage of vessels plying there, is the equal of Amsterdam. In 1928 4579 steamers with a capacity of 24 169 500 kub. meters entered there. The Curaçao Navigation Company owns 32 tank vessels of from 2000 to 2400 tons cargo capacity. The oil transport especially has developed the harbour traffic as evidenced by the fact that the importation of crude oil now amounts to far above 3 million tons annually. As a bunkering port also Curaçao has attained to great importance. Annual figures such as 70 000 tons of coal and 400 000 tons of oil fuel testify to the enormous influence of the oil industry on the whole industrial life of the colony.

Although of much less importance, yet the export of phosphoric lime (annually over 100 000 tons) also contributes to the prosperity of Curaçao. This product is made in Europa into super-phosphate. We may also refer to the salt production in Bonaire; work is also provided on the Leeward islands for many women and girls by the straw-hat industry, which exports the well known Panama hats. Agriculture, forestry and cattle-breeding only play a subordinate part in the West-Indies, although the fertility of the soil and the greater rainfall afford a better chance to the Windward than to the Leeward islands. Cultivation chiefly comprises tanning materials, oranges, maize, aloes and ground-nuts, but the first named are not in the same flourishing state as in former years; the figure denoting the joint imports of the three islands, about 500 000 florins per annum, is sufficiently eloquent. Navigation is confined to small sailing craft. Agriculture and horticulture are carried on almost exclusively for inland consumption; there is some salt mining in St. Martin and also a little cotton growing.

Returning to Curaçao, the great shipping traffic and the petroleum industry are the chief sources of national

welfare there. In 1928 the value of the exports of the West Indies amounted to 260 million florins, Curaçao alone accounting for 178 million; the value of the imports amounted to 268 million (181 million of which were taken by Curaçao). Both figures were about 125 million higher than those of the preceding year. The chief articles of export are diesel-oil and gas-oil, gasoline and fuel-oil; the chief articles imported are crude oil, clothing, linen and cotton goods, shoes and preserves. On Curaçao there are some excellent schooner wharves, and on Bonaire brick-works. Saba supplies lace-work.

As the outer-port of the Maracaïbo territory (Venezuela), Curaçao has in a few years greatly increased in importance and has become a site of the petroleum industry. The imported crude oil is stored or refined in Curaçao, the various products being afterwards reshipped on a large scale. The Curaçao Petroleum Industry Company (a subsidiary of the Royal Dutch Shell concern) has a practical monopoly here; in Aruba the Lago Oil and Transport Company and the Eagle Petroleum Cy. cooperate. In 1929 8,8 million tons of crude oil were produced in Venezuela. The storage capacity in Curaçao is estimated at 1 840 600 tons.

Curaçao counts about 66 000 inhabitants, of whom 20 000 reside in Willemstad, the capital. A system of schoolteaching has been arranged for, provisions for public health and land traffic have been made and banking institutions, postal, telegraph and telephone services have been installed to suit the local requirements. On Curaçao there is no compulsory education; 15 % of the population receive primary instruction. The Roman Catholic Mission (90 % of the population are Roman Catholics) is chiefly responsible for popular and industrial education, poor relief and care of the sick. There is a Colonial and School Museum in Curaçao.

As regards communication with other countries, Curaçao is favourably situated. With the Mother-country this is maintained by a fortnightly service of the Royal Netherland Steamship Company, whose cargo steamers also call at St. Martin, or by steamers of the Holland-America Line calling there en route for the North Pacific coast. Curaçao is a port of call for a number of regular steamship services to Europe, North-, Central- and South-America. For the other five islands, Curaçao is a transshipment port. A montly steamship service between Curaçao and Bonaire is in a state of preparation.

Curaçao is connected with the telegraph line New-York—Venezuela via Haïti—San Domingo. Stations for broadcasting are established at Curaçao, Bonaire, Aruba and St. Martin.

The Curaçao customs tariff shows no differential or preferential duties, not even as regards the Mothercountry. Goods in transit are free. Free of import duty are machinery, implements and materials for agriculture, mining and other branches of industry. The tariff for a majority of the goods is only 3 % ad valorem; an excise duty is levied on spirits. The importation of absinthe is prohibited.

Among the banking institutions the Bank of Curaçao, which is the Government bank, ranks first. There are further the Maduro Bank, the Holland Bank for the West Indies, the Curiel Bank and the Curaçao Mortgage Bank. Finally the Savings- and Loan Bank is specially in charge of the savings of the native population.



